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American Planting Projects

AMERICA may have been dilatory about getting into the business of large scale production of crude rubber, but, unless all signs are misleading, when it gets fairly started it will more than make up for lost time. So, too, while it may not be able to ward off the rubber shortage that Secretary Herbert Hoover forecasts for 1928-30, it will be in a position to not only measurably limit the lean period but to effectually avert a recurrence of such a great industrial adversity.

Indications are multiplying that before many years Americans will and must be as energetic in rubber raising as they have been enterprising in rubber manufacturing. More than ever are they impressed with the fact that they must not only continue efficient in the production of finished goods, but that they must do their share in the production of raw material. It was because the federal government keenly appreciated the urgency of such provision for the vast rubber business of the country, and realized how the lack of it might even imperil the nation in a war, that a commission was authorized to make expeditions and to consider exhaustively the possibilities of growing rubber under conditions distinctly favorable to American interests.

Having shown the opportunities afforded by the Philippine Islands for rubber planting, the commission in its latest survey stresses the advantages offered by Brazil, which hitherto had yielded the bulk of the world's crude rubber supply. In dwelling upon the potentialities of this great original source, much is reiterated concerning the mighty area available in the Amazon Valley for rubber growing, the suitable soil, climate, and favorable topography; and, while admitting the lack of rail and river transportation, the hope is expressed that this deficiency will be supplied when warranted. Ample labor is said to be obtainable at low cost and extensive tracts of public lands may be had at nominal cost, not only in Brazil but also in the Amazonian regions of Peru and Ecuador.

Many, however, are likely to be troubled about the permanency of grants. What assurance, they may ask, can the Brazilian Government give, as an inducement to prospective rubber planters, that the present export tax on rubber would be removed or considerably lightened, as the commission has been led to believe, or a lower import tax set on equipment, even for a period of ten years? The good faith of the present able and dependable administration is undoubted; but a future one may repudiate all agreements.

However, it affords Americans much satisfaction to note that their countrymen have already demonstrated their competency as rubber raisers in the eastern tropics, as witness the conspicuous success of the United States Rubber Plantations, Ltd. That concern has had in its fifteen years' experience its share of rubber planters' tribulations, and were it not for superb pluck and astute management it could not today boast of having not only the largest rubber plantation in the world but also of profits of nearly $5,000,000.

In its huge plantation venture in the Far East the Goodyear Tire & Rubber Co. has also shown that rubber growing is essential and profitable. Now comes the Firestone enterprise in Liberia with a 99-year, million acre lease and a 2,000 acre ready-made rubber plantation as a primary unit, promising much for the little, neglected

negro republic and for the rubber industry. Topping this is the Firestone plan to lease 35,000 acres in southeastern Mexico. This last named includes not merely a great territory in which the indigenous Castilloa flourishes but also the large estate, like that conducted by the late J. C. Harvey, on which Hevea has thrived for twenty years. Handled wisely, with other products to keep the native labor busy meanwhile, even quarterly tappings of Castilloa might prove profitable, or at least help to cover overhead costs until the Hevea trees in newly-planted areas reach maturity.

Plugging Leaks in Industry

AN encouraging sign of the times is the increasing desire of the people of the United States to determine if possible the true extent of the nation's colossal industrial waste, as well as to devise means for its reduction. Economists have long inveighed against such needless outlay and have shown purchasers how, in direct measure with the prevalence of waste, they must pay more for everything they buy and must often receive less than a fair profit on much that they have to sell. Yet although buyers and sellers have long felt that this condition could be ameliorated, they have cast about vainly for means of relief. Without the prime essential, adequate data, obtainable only through most exhaustive research, they could, however, formulate no comprehensive plans for remedying this grave industrial disorder that is costing the country hundreds of millions yearly.

To consider an important phase of the major problem, namely, domestic distribution; over 200 economists, editors, advertising and business men are scheduled to meet in Washington this month; and their deliberations should be of as much significance to the rubber trade as to any other industry. Under the auspices of the Chamber of Commerce of the United States, committees and sub-committees have for nearly a year been gathering information as to how merchandising transactions reaching $56,000,000,000 in 1924 were conducted; and it is believed that analyses of their findings will point the way to better methods to be followed in manufacturing and marketing industrial products.

Besides summarizing a vast amount of information, six promised surveys are expected to indicate many notable needs, to determine what waste is preventable, and to recommend merchandising practices of the utmost efficiency. Stress will doubtless be laid also on the necessity of collecting trade information that will help to avert over and irregular production with booms and slumps, the evils of over-buying and over-selling, cancellations, unethical credits, and perhaps "spring dating," the folly of too many varieties of specific articles, the importance of standardization in all its phases, arbitration for settling labor and trade disputes, plans for controlling overhead costs; and many good suggestions may be looked for regarding direct selling, as to legal regulation of sales, the problems of state and federal taxation, and the rights of manufacturers and others to combine for the promotion of trade.

AN EARLY SLUMP IN CRUDE RUBBER PRICES WILL hardly be hastened by a recent decree of the Governor General of the Netherlands Indies levying a 5 per cent ad valorem export duty on all Hevea rubber, except such as is produced on estates and is so certified. Such duty is collected on all rubber transported by sea to places within the customs area, and from which no export duty is levied. Hence native rubber exported to Java will be taxed, but estate rubber, as from Borneo or the Lampoengs, may be sent free to Java or to any foreign port after filing only an exemption certificate. Evidently the Dutch have learned something from the British rubber raisers in Malaya and Ceylon; and, while it is explicitly averred that the new tax is solely for revenue, it may also tend to keep producers within reasonable bounds, checking both overplanting and ruthless tapping. In setting export values the Dutch will wisely follow the market. Naturally many British growers regard the new Dutch regulation as tantamount to indorsement of the Stevenson Act; but perhaps it would be more exact to interpret it as semi-conversion to restrictionism.

THAT SYNTHETIC RUBBER IS BEING PRODUCED IN Germany from soy bean oil is the interesting information given in an article in a popular-priced magazine by the usually careful Dr. Edwin E. Slosson, director of *Science Service*. The "rubber," which is really not synthetic at all, is said to feel and compress like real rubber, although breaking on extension; yet "mixed with real rubber, to give it the necessary stretching strength, it might well go to make up automobile tires." Of course the soy bean product is a kind of factice, and not a true rubber substitute, available only as an auxiliary material in a limited number of rubber compounds. Economically, soy bean oil even compares ill with other oils in the making of factice; for while the index for sulphur or sulphur chloride required to vulcanize olive oil is but 83, castor 86, rape 98, cotton seed 109, corn 120, and poppy 135, it is 140 for soy bean oil. However, the latter is a good softener for rubber; and Dr. Slosson is right about soy sauce being unmatched for chop suey.

COTTON STATISTICIANS ARE BEGINNING TO DOUBT THAT Britain will ever be independent of American cotton. Twenty-three years ago America's crop was 60 per cent of the world's production—today it is about 55 per cent. And this in the face of aggressive British pioneer work and the expenditure of vast sums. Is America's quest for independence in rubber a parallel; and twenty-three years hence will she still be striving to break Britain's rubber monopoly?

TO COMMEMORATE THE FOUNDING OF THE AMERICAN rubber industry by Thomas C. Wales in 1825, a banquet is to be held in Boston, December 7, sponsored by that active and public spirited citizen, Quincy Tucker.

Electro-Plated Rubber Goods

Unique and Important Method of Rubber Manufacture

IT has been said that rubber finds application in the manufacture of 30,000 different articles. Whether this is an over estimation or not the fact remains that the usefulness of rubber is practically unlimited and expanding, due in part to improved processes.

Electro-deposition of metals has long been practiced in metallurgy and in the manufacture of jewelry and plated ware for all purposes. We are so accustomed to consider the electro-plating process as applicable to metals only that it is very surprising to learn that pure caoutchouc can be deposited electrically from emulsions and latex either pure or compounded. Not only was this process unexpected in the technology of rubber but it makes possible many rubber applications in fields new to the industry as practiced by the usual mechanical methods.

The first patent on a process for the electro-deposition of rubber is that granted to S. E. Sheppard and L. W. Eberlin.[1] These inventors found that any solution of rubber in an organic solvent can be distributed in an aqueous solution of soaps or equivalent emulgents and the mixture be emulsified by agitation, grinding or spraying. As an example, 1,000 cc. of a 5 per cent solution of rubber in benzol is diluted with 1,000 cc. of kerosene. To this is added 500 cc. of sulphonated castor oil and the mixture is then stirred into 3,000 cc. of an aqueous solution containing 150 grams of castile soap which is the main emulsifying agent. The sulphurated oil is not indispensable, but is preferred as an auxiliary or intermediate emulsifier assisting the action of the main emulsifying agent. Pigments, sulphur, accelerators or other conditioning agents may be added before emulsification or added afterwards in solution or colloid form.

A diagramatic arrangement is shown in Figure 1 for the electro-deposition of the rubber. The conducting surface A, to be plated is connected at B to the anode line C to form the anode and is immersed in the emulsion D. An anode is also placed in contact with the emulsion, or the latter may be contained in a metal vessel E which is connected in the circuit of cathode line F. The current should be a single directional one of about 110 volts. Deposition can take place slowly at much lower voltages and more speedily at higher voltages. The time of plating under these conditions is very short, about 5 minutes duration at room temperature.

[1]United States patent No. 1,476,374, December 4, 1923.

The electro-deposition of rubber as applied by this process to fabrics was given popular interest recently by a scientific paper on the subject.[2]

Not only can electro-plating with rubber be done from artificial emulsions, the same process may be used to make rubber articles direct from rubber latex, which are subsequently vulcanized by the application of the customary methods of curing.

The details of the process of making rubber articles such as sheets, rubberized fabrics and molded articles direct from latex by electro-deposition are given in the patent of Paul Klein, a Hungarian inventor.[3]

The process is based on the fact that rubber can be deposited as a homogeneous, thick and smooth layer on the surface of a porous non-conductive base, located between the electric terminals and serving as a backing or mold for the formation of the electrically precipitated rubber. The escape of the gases liberated at the anode is effected either through the pores of the porous mold alone, through the space between the mold and the anode, or through the electrolyte filling the intervening space. After removal from the bath and drying, the rubber layer deposited forms a transparent homogeneous skin of high elasticity and tensile strength.

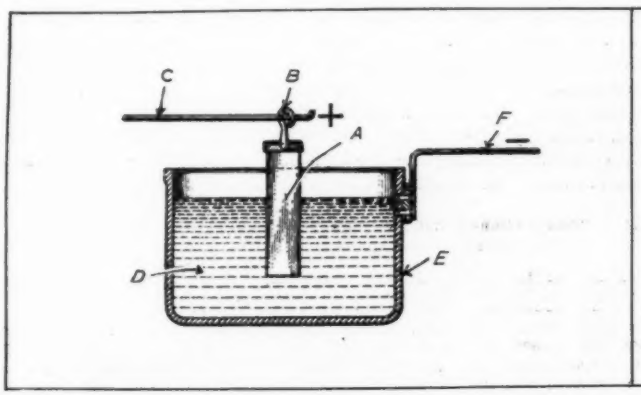


Fig. 1. Diagram of Apparatus for Electro-Depositing Rubber After Sheppard and Eberlin

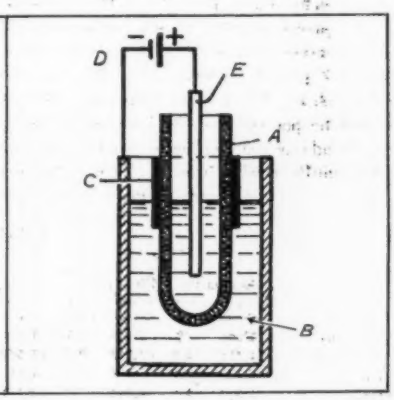


Fig. 2. Diagram of Apparatus for Electro-Depositing Rubber from Latex After Klein

The action of the process is probably due to the circumstance that the gases evolved at the anode can escape freely from the liquid layer between the precipitation surface and the anode without affecting the rubber deposited.

If perfectly clear rubber articles are to be produced the latex is purified. If desired the latex can be concentrated also by centrifuging and the purified latex vulcanized. It is advantageous to add 0.5 per cent of ammonia to the latex as a preservative and to prevent coagulation.

Precipitation bases or molds for forming the articles are made of gypsum or unglazed earthenware, while the anodes arranged inside of them are made of carbon or metal. Figure 2 illus-

[2]"The Electro-deposition of Rubber." By S. E. Sheppard and L. W. Eberlin. Presented before the Division of Rubber Chemistry at the 69th meeting of the American Chemical Society, Baltimore, Maryland, April 6-10, 1925.

The India Rubber World, May 1, 1925, 475. *Ibid*, August 1, 1925, 664. *Ibid*, February 1, 1925, 287. *Industrial and Engineering Chemistry*, July, 1925, 711-714.

[3]United States patent No. 1,548,689, August 4, 1925.

trates diagrammatically the arrangement of apparatus for the deposition of a hollow rubber article direct from latex. In this case a hollow porous mold, A, is supported immersed in latex, B, connected on the outside at C with the cathode current line D. The interior of the mold A is filled with latex in which anode E is suspended and connected with the anode current line F. Corresponding similar arrangements of apparatus are made for the deposition of rubber sheets, and for coating rubber upon fabrics.

Transparently colored goods may be produced from dyed latex in which the organic dyes used have a negative charge. Sulphur and various rubber compounding ingredients, solid and liquid accelerators, oils, etc., may be incorporated in the plating solution without mechanical treatment of the rubber, thus preserving unimpaired the original strength of the rubber. In using compounding materials the particles of which in aqueous dispersion have a negative charge, a homogeneous rubber mixing is obtained by the electric deposition.

This method is applicable to gutta percha and balata as well as to caoutchouc latex. Manufacturing operations have already been arranged for in England and the United States and presumably rubber plated fabrics and garments will ultimately be available in any style desired.

CANADIAN RUBBER GOODS EXPORTS

Canadian exports of rubber products were valued at $14,671,052 during the year ended September 30, 1925, as compared with $9,536,335 in the preceding 12 months, an increase of about 54 per cent, states *Commerce Reports*. The number of casings exported increased 47 per cent; inner tubes, 73 per cent; pairs of rubber boots and shoes, 134 per cent; canvas rubber-soled shoes, 50 per cent; and the pounds of rubber belting, 39 per cent. It is apparent that Canada is making very rapid advances in international trade in manufactured rubber products. The growth of the Canadian trade is aided by lower tariff rates on Canadian than on American rubber products in several British colonies. The leading companies exporting from Canada are branches of American manufacturers, and during the dull season in Canada export business is often transferred to Canadian plants in order to maintain production schedules.

The rapid expansion of the Canadian export trade in rubber products is shown below:

CANADIAN EXPORT TRADE IN RUBBER PRODUCTS

	Year ended September 30			
	1924		1925	
Commodity	Quantity	Value	Quantity	Value
Pneumatic casings .....number	541,043	$5,484,714	796,404	$8,123,868
Inner tubes .....do	528,694	764,911	913,370	1,385,718
Solid rubber tires .....do	9,544	189,091	11,107	237,308
Rubber belting .....pounds	665,249	379,316	924,129	470,207
Rubber hose	.....	152,309	.....	196,484
Rubber boots and shoes....pairs	467,968	702,809	1,095,444	1,669,198
Canvas rubber-soled shoes...do	2,036,481	1,526,973	3,068,239	2,145,756
Waterproof clothing	.....	23,849	.....	37,832
Other rubber manufactures	.....	312,363	.....	404,681
Total	.....	9,536,335	.....	14,671,052

Consumption of Crude and Reclaimed Rubbers Compared

Recent statistics on the consumption of crude rubber reveal some interesting facts in regard to the growth of the rubber manufacturing industry during the first nine months of 1925, compared with the condition for the corresponding period of last year. The following divisions of the industry show an increase in the consumption of crude rubber: tires and tire sundries 27.5 per cent; mechanical rubber goods 32.8 per cent; insulation 9.0 per cent; water proofing 5.0 per cent; heels and soles 60.0 per cent; miscellaneous rubber goods 1.4 per cent.

Boots and shoes and druggists' sundries made no gain in crude rubber consumption but showed no decline. Hard rubber consumed 8.00 per cent less crude rubber although the value of goods produced gained 15.5 per cent.

Table I shows the consumption of crude rubber for each quarter by divisions of the rubber manufacturing industry from the third quarter of 1923 to the third quarter of 1925, inclusive. And also the percentages of the grand total consumed by the industry of each item of quarterly consumption. These percentages show an upward trend in the crude rubber required for tires of 10 per cent from the third quarter of 1923 to the third quarter of 1925.

Mechanical rubber goods, boots and shoes and all other products maintain the same relative rank in this period, but show a marked decline in their respective percentages of rubber consumed. The tonnages of crude used in these branches for the third quarter of 1925 as compared with those of the third quarter of 1924 show decreases as follows: mechanicals 25 per cent; boots and shoes 61.5 per cent; all other products 31 per cent. These decreases are more notable during the second and third quarter of the present year owing to the high prices prevailing for crude rubber. This condition also coincides with the marked increase in production of reclaimed rubber which became available for the same reason.

TABLE I—CRUDE RUBBER CONSUMPTION

	1923				1924								1925					
	3d Quarter		4th Quarter		1st Quarter		2d Quarter		3d Quarter		4th Quarter		1st Quarter		2d Quarter		3d Quarter	
	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%
Tires, tubes, accessories....	38,428	76.8	44,968	78.5	60,920	81.5	56,323	82.5	64,525	85.0	69,894	84.0	71,343	81.5	82,607	85.8	78,552	86.0
Mechanicals	3,214	6.4	2,880	5.0	4,085	5.5	3,149	4.7	3,337	4.5	3,774	4.5	5,339	6.0	4,884	5.0	4,398	4.8
Boots and shoes.....	3,845	7.8	4,349	7.5	3,930	5.25	3,494	5.2	2,559	3.5	3,843	4.5	3,890	4.5	2,603	2.7	2,870	3.0
All other products.....	4,572	9.0	5,058	9.0	5,913	7.75	5,141	7.6	5,011	7.0	5,880	7.0	7,070	8.0	6,277	6.5	5,714	6.2
Totals.....	50,059	100.0	57,255	100.0	74,848	100.00	68,107	100.0	75,432	100.0	83,391	100.0	87,642	100.0	95,771	100.0	91,534	100.0

TABLE II—CONSUMPTION OF RECLAIMS AND PROPORTION USED TO CRUDE RUBBER

	1924		1925		
	Third Quarter	Fourth Quarter	First Quarter	Second Quarter	Third Quarter
	Tons	Tons	Tons	Tons	Tons
Reclaim	15,231	20,864	22,922	23,651	29,910
Crude rubber	75,432	83,391	87,642	95,771	91,534
Proportion reclaim to crude rubber	20.0%	23.8%	26.25%	24.5%	32.8%

In Table II comparison is made of the consumption of crude and reclaimed rubbers over quarterly periods from the third quarter of 1924 and including the third quarter of 1925. In that space of time the consumption of reclaim practically doubled, increasing from 15,231 tons in the third quarter of 1924 to 29,910 tons in the third quarter of 1925. Each quarter except one shows an increase in ratio of reclaim used to that of crude rubber beginning with 20 per cent in the third quarter of 1924 and reaching 32.8 per cent in the third quarter of 1925. In other words a pound of reclaim is now used to every three pounds of crude rubber where a year ago one of reclaim was used to five of crude. There is, doubtless, a strong tendency to continue the increase in this ratio.

Fiber Containers for Rubber Goods

The Fiber Container Industry—Corrugated and Solid Fiber Containers Defined—Standardization by Application of Drum Test to Shipping Problems—Packing and Sealing Fiber Containers—Gluing and Sealing Machines—Economies of Fiber Cases

THE fiber container industry has grown rapidly from small beginnings to its present magnitude. There are today some 167 factories in this country making corrugated and fiber boxes. Their combined capital is probably in the neighborhood of $68,000,000, with an annual production valued at about $145,000,000. It has been estimated that $12,000,000,000 worth of goods moved in fiber containers last year. The industry is still growing at an accelerated rate, with the demand in excess of the supply.

Most of these factories merely fabricate the boxes and built-up boards, although many of the larger plants have their own mills and box factories, forming a self-contained unit of considerable size. One of these, for instance, which is capitalized at $2,500,000, ships 300 tons of finished product per day and has a sales turnover amounting to seven million dollars a year. The annual tonnage of the entire industry is over 400,000, having increased about 150 per cent since 1914.

Former Secretary Alexander, of the Department of Commerce, in a report on the waste paper situation, mentions that over 2,000,000 tons of ordinary waste paper are used for making boxes and shipping containers alone, which use conserves 1,000,000,000 feet of lumber for other uses. To replace the fiber shipping containers now annually used would require 500,000,000 feet of lumber. Thus it is evident how great a factor the fiber container is in forest conservation.

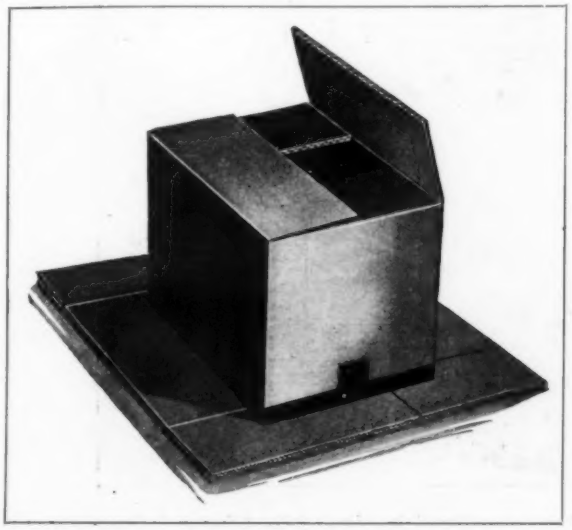


Fig. 1. Regular Slotted Corrugated Fiber Carton

Manufacturers of rubber goods in common with those producing wares in many other lines are ascertaining by experience the economic and other advantages offered by both corrugated and solid fiber shipping containers. For casing goods packed singly or by groups in cartons, fiber containers are particularly adaptable and satisfactory for carrying weights not exceeding 90 pounds.

The use of fiber containers properly designed for the goods affords the manufacturer full relief from the loss and damage in transit due to rough handling, and to entrance of loose dirt or dust finding its way in through splits or joints in the container walls. These losses finally received from manufacturers, shippers and box makers the attention they merited with the result that economical and safe carriage for goods is now provided by the development of corrugated and solid fiber containers and methods for sealing and handling them.

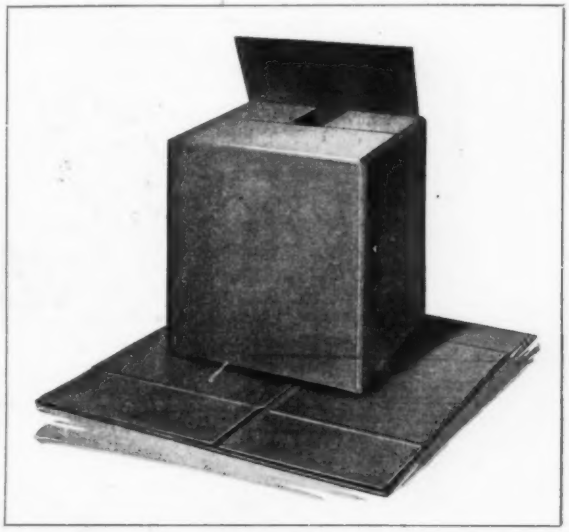


Fig. 2. Regular Slotted Solid Fiber Carton

Wooden shipping cases and crates, however, still remain the best means available for protecting in shipment goods weighing over 90 pounds. In fact the wooden barrel is the best form of shipping container known and therefore to secure its advantages without its shortcomings fiber barrels are now made with wood heads. They are well adapted for dry, light gravity materials and are being used as containers for shipment of rubber accelerators.

Fiber Containers Defined

A fiber shipping container is a tough, efficient and economical outer package built to withstand the wear and tear of freight, express and parcel post shipment. It is used for shipping all manner of commodities up to a weight limit of 90 pounds. There are two types of these boxes, both equally popular, the laminated wall or "solid" fiber box and the "double faced corrugated box." These types are shown in Figures 1 and 2. The form in both cases is the same and is known as the regular slotted carton. Of all fiber boxes used 96 per cent, whether solid fiber or corrugated, are of this type. The principal materials used in the manufacture of fiber boxes are wood pulp, waste paper, straw (for the corrugated sheets), silicate of soda as adhesive for assembly of the solid fiber plies, and the double-faced corrugated components. Tape and wire staples are used for joining the fourth corner of corrugated and solid fiber containers respectively.

Standardization and Tests

The Container Club, an association of corrugated box manufacturers has established at the Mellon Institute, Pittsburgh, Pennsylvania, a research fellowship for the standardization and improvement of the various manufacturing steps, raw materials and testing methods for fiber containers used in this country. Much attention has been devoted to the development of physical test methods.

Drum Tester

Chief, perhaps, among testing machines is the drum box tester, shown at A in Figure 3. The drum is of hexagon cross section, heavily built with open ends to permit observation of the test and twice in one minute, the six drops of each turn being automatically counted by contact of the star wheel on the axis of the drum, with the lever of a counter.

Study of Shipping Problems

The drum test is relied upon to develop the practical protection afforded to goods boxed in any type of container. The results are strikingly convincing in the comparisons afforded. If, for example, a manufacturer of rubber goods desires to acquaint himself with the merits and economy of fiber containers in the shipment of any or all of his products, he finds any manufacturer of fiber cases in position to study his boxing problem.

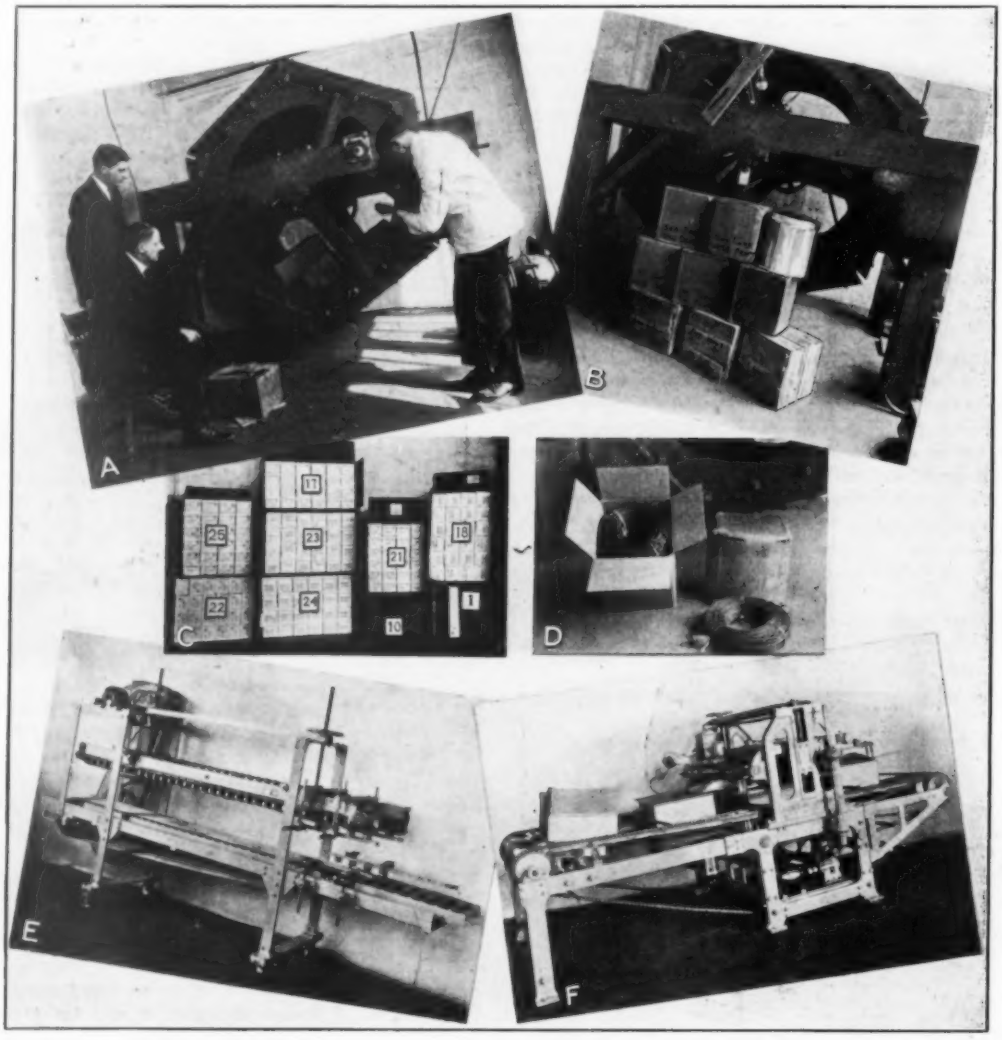


Fig. 3. (A) Drum Box Tester, (B) Drum Test of 25-Pound Can Boxed in Wood, Solid Fiber and Corrugated Fiber, (C) Drum Test of Rubber Footwear Fiber and Wood Containers, (D) Insulated Wire Case, (E) Hand Gluing and Sealing Machine, (F) Automatic Gluing Machine

with open angles to facilitate cleaning the interior. Inside the drum are arranged "hazards" or baffles attached at alternate ends of each face of the drum. The baffles compel the loaded box under test to drop on each side and corner, resulting in an excellent duplication of the treatment to which a box may be subjected in actual service. In the performance of a test the drum revolves

The usual method is first to make a drum test of the regular package in wood to ascertain how many drops the loaded box will stand before the nails pull or the wood case splits. The same goods are then repacked in a fiber container and the test repeated until the retainer gives way. The relative efficiency of wooden and fiber containers is shown by the drops each withstands in the test.

A striking comparison of the efficiency of wood, solid fiber and corrugated fiber containers, each holding a single 25 pound can, is shown in illustration B, Figure 3. The wood cases opened up by failure of the nails in from 85 to 151 drops. The solid fiber failed in from 96 to 159 drops showing it to be as good as the wood. The corrugated fiber box showed the remarkable endurance of 422 and 494 drops.

Rubber Footwear Packaging

Rubber shoes are put up one pair in a paper carton varying numbers of which are packed in a wooden case. Such a case of shoes is marked 1 in illustration C, Figure 3. This was split in a drum test. Resting upon Case 1 is another of cartoned rubber shoes in a solid fiber container marked 18, which withstood a much better drum test. Other cases of rubber shoes are shown in the same figure, unsealed and awaiting test.

A further example of the ability of the fiber case to withstand the drum test is shown in D, Figure 3, which represents a package of rubber insulated wire.

Tests of the kind indicated above are so convincing and the economies of fiber cases so readily demonstrable that many of the larger American and English manufacturers have adopted the use of fiber cases as shipping containers for their products. Some of the lines of rubber goods thus packed include rubber footwear, inner tubes, automobile accessories, heels, water bottles, fountain syringes, fruit jar rings, insulated wire, garden hose, golf balls, tennis balls, toys and hard rubber goods.

Packing and Sealing Fiber Containers

Fiber containers are delivered by the manufacturer in flat form slotted and scored ready for setting up in box form. This work is done by hand as is also the filling of the fiber container with the unit cartons holding the goods.

The problem of sealing the outer containers has been solved most effectually by the use of special machinery designed for hand or automatic operation. A fiber case to be properly sealed requires an even, yielding pressure over the entire glued area.

A sealing machine for hand operation is pictured in Figure 3 at E. The machine is portable and can be set in any location in the packing department convenient to the work. It is electrically driven by current from a lamp socket. The cases to be sealed are brought to the roller bed or front end of the machine by hand truck or conveyor system. Both top and bottom flaps are unsealed. The bottom flaps are merely folded to place and rest on the roller bed. When the case arrives at the machine, the operator applies adhesive with a brush, first to the upper surface of the inner flaps then, rolling the case the other side up, to the inner flaps of the opposite side. The glued case is then pushed into the machine. This act causes a switch to function starting the motor which continues to run until the case is entirely under the influence of the top pressure unit. It then stops until the entrance of the next case starts it as at first. A sealed case thus leaves the machine as an unsealed one enters.

Sealing pressure is applied to the cases as they pass through the machine between upper and lower belt conveyors. The pressure is adjustable and is applied by a series of spring rollers acting on the lower run of the upper conveyor. By this means any irregularities of the contents under the top flaps of the container are compensated and perfect contact of the glued surfaces secured. The saving effected is due to the fact that sealing of top and bottom is done at the same time, avoiding separate operations otherwise necessary. An operator with the hand machine can seal 300 boxes an hour.

Automatic Sealing

Where sealing of continuous packing is necessary the sealing machine just described is fed with containers with flaps of top and bottom glued by the machine shown in F Figure 3.

When an automatic gluing machine is used the packed containers are brought to the front end of the machine in a continuous stream by belting or roller bed conveyor. From the end of the conveyor they are automatically timed into the machine so that only one case at a time can enter. As the case enters the outer flaps both top and bottom are spread and receive their glue automatically. Meanwhile a steel platen of proper width supports the contents together with the lower inner flaps of the case. After the adhesive is applied the flaps are immediately folded into their closed position and the container rides forward and is pushed into the sealing machine referred to above. The combination of automatic gluing and sealing machines increases sealing capacity by 400 per cent over that of the hand-glued and fed machine.

Gummed Paper Sealing

In many packing rooms where individual cartons are sealed or where the number of fiber containers is too small to require a machine for the work, effective sealing can be done by means of strong gummed paper strips or tape. Such paper comes in standard size rolls, 12 inches in diameter, in various widths to be used in a dispensing machine. By pressure of the finger of the operator such a machine cuts, moistens and delivers the tape ready for use.

Fiber containers may be securely sealed by applying gummed paper over the joints, exceeding in strength all railroad requirements.

Economies of Containers

Not only does the use of fiber containers aid materially in forest conservation by requiring only 10 to 15 per cent of new wood pulp, but fiber packages can be definitely standardized in quality, size and weight, insuring the advantages of uniformity.

Many concrete instances of economy might be cited from actual practice due to savings in freight, by lessened weight and bulk of fiber containers over wood. Savings in weight amount to 20 per cent and in cargo space 8 per cent. These make possible enormous savings in freight to say nothing of the elimination of losses by goods damaged in transit.

Increasing Package Sales

The redesign of packages for goods in fiber containers has proved a source of economy and profit in many lines where package sales are concerned. A manufacturer whose shipping unit was 10,000 feet of insulated wire weighing 146 pounds recently changed this unit to 5,000 feet coils weighing 73 pounds. This permits the use of a fiber case as shown in D, Figure 3, with marked economy and sales advantage.

Examples of Rubber Goods Packing

Rubber heels are packed in individual pair cartons, 1 gross pair in a fiber container. Several sizes of containers are used, mostly 19½ by 14½ by 6¾ inches. Shipping weights vary from 30 to 60 pounds. Jar rings are packed 12 in a carton, 24 cartons in a container. Inner tubes are packed as individuals in cartons, 12 to a container. Fiber containers of 6 different sizes are required to accommodate the range of tube sizes.

MANGIN WHITE

White Seal Mangin White is a special quality lithopone designed for rubber makers' use. It is highly resistant to darkening by light and exceptionally strong in pigment effect for producing pure white rubber goods, and is notable as well for its remarkably uniform quality. These important characteristics of whiteness and unvarying quality result from the long experience back of its manufacture for the rubber trade.

AN AUTOMOBILE TIRE UNDER THE TRADE NAME "PALLAS" IS BEING produced and marketed by R. & E. Huber A. G. of Pfaeffikon, Canton of Zurich, Switzerland.

Rubber Planting Possibilities in the Amazon Valley

What the Government Investigation Disclosed

THE rubber industry of the Amazon Valley, the home of the *Hevea brasiliensis* rubber tree, still is, as it always has been, dependent on the gathering of wild rubber. This well-known fact is again pointed out in the government's recent crude rubber report which discusses in great detail the present status and possibilities of the wild rubber industry in the Amazon Valley.

Existing Planted Areas

Little governmental assistance or encouragement has been given in the matter of planting Hevea by the development of experiment stations. It was through the *Club da Seringueira* formed some years ago in Manaõs that much of the planting was started, but the low price of rubber and the resultant depression caused the club to disband.

Small patches of planted Hevea are found in many places in the Amazon Valley. These vary from a few trees up to as many as 20,000, the latter being the largest single area. For the most part the trees have been planted either in unsuitable soil or too close together and have usually had no care after planting. It is not possible to compare them in size or rate of growth with eastern plantation trees which have been grown under careful cultivation routine. The apparent slower growth might be due to several factors, such as the long, dry summer season of six months with sometimes three months without rain; unfortunate choice of land having unsuitable soil; lack of knowledge of the best planting methods; lack of proper upkeep after planting. All this applies not only to the plantings in Brazil but to those of Bolivia and Peru.

Topography

The proper combination of such physical conditions as topography, soil and climate exists in many localities in the Amazon Valley and over large and contiguous areas of country. These areas are found both in regions easily accessible and in regions lacking adequate transportation facilities. And it must be remembered that transportation still is as it always has been the chief key to the rubber situation in South America.

Ocean-going vessels can ascend the Amazon above Iquitos, Peru, and the Tapajoz, Madeira, and Purus for considerable distances from their junctions with the master stream. In the delta of the Amazon the land is low and large areas are subject to inundation. The same is true of some of the tributaries, but farther up the gradually narrowing valleys of these rivers there are high level or rolling plains 300 to 600 feet above sea level. Such regions as the Acre Territory in Brazil and neighboring areas in Bolivia are handicapped not only by their great distance from an ocean shipping point but also by the decreased navigability of their rivers during the dry season.

Choice of Lands

The only land suitable for rubber planting in the Amazon Valley is virgin forest, except some 8,000 acres near Capatara, in the Acre Territory, and possibly other smaller tracts elsewhere. The large areas of original grasslands (*campos*) in the Amazon Basin are unsuitable for rubber planting because of soil conditions. The best lands are the forested uplands in close proximity to navigable rivers. This is the original home of the Hevea where the tree attains its greatest size and most perfect development, yields the finest quality of rubber and the largest quantity per tree, size being considered. The general rule can be followed that the heavier the jungle the better will be the soil for rubber planting, unless the land be too hilly or rocky.

Soils

Hevea needs a deep, friable, well-drained soil, or at least one in which the ground water level lies for a considerable part of the year at a depth of several feet. The soils of the Amazon Valley may be divided generally into two classes, namely, the alluvial or flood plain soils formed by the deposits made by rivers, and the soils of the uplands. In most of the area especially suitable for rubber planting, from the transportation standpoint, the soils are silts and clays of a texture that will hold moisture and allow a deep penetration of the tree roots. On the upland loam soil drainage and soil conservation would not be so great a problem as in the Middle East. In those sections of the upland regions where the finest Heveas are found the soils are predominantly deep, heavy loams, silt loams, clay loams, and very fine sandy loams, with a yellow horizon that is thin or entirely absent, and the red or yellowish-red horizon chiefly of friable clay, and never compact or hard.

Climate and Rainfall

Generally speaking the climate of the Amazon Valley is very uniform and relatively pleasant and healthful for a tropical country. Temperature conditions are similar to those of the Middle East, with some advantages. Mean annual temperatures are as follows: Pará, 78.4 F.; Manaõs, 80.9; Iquitos, 72.5; mean maximum daytime temperatures: Pará, 87.4; Manaõs, 89.6; Iquitos, 74.9; mean minimum night temperatures: Pará, 71.8; Manaõs, 74.8; Iquitos, 70.0. The highest absolute maximum temperature recorded at these cities in recent years was 101.5 at Manaõs, and the absolute minimum, 62.6 at Iquitos. High temperatures are somewhat compensated for by good air movement.

The total yearly amount of rainfall, in general, is less in the Amazon Basin than in the best rubber growing areas of the Middle East, and it is not so well distributed, the rainy and dry seasons being more accentuated. However, in the western end of the basin and south of the Amazon, the total rainfall compares favorably with that of the Middle East. Total rainfall at Manaõs averages 65.1 inches with 183 wet days; at Iquitos, 93.2 inches, the number of wet days not being recorded; at Pará, 97.8 inches with 252 wet days.

In that part of the Amazon Valley lying in Brazil the seasons are reversed on either side of the river; the rainy months on the south side are the dry months on the north, and vice versa. On the south side the rains ordinarily may be considered to begin about November and continue through April. The months of May to November are the dry months, though usually some rain will fall. Records show, however, that at Manaõs the wettest months are from December to May inclusive; at Pará from January to June; at Iquitos the distribution is more even, December and March to June being the wettest months.

Sources of Seed

All seed for planting in the Middle East is derived from the descendants of the original trees grown from seed brought years ago from the Amazon Valley. In the Amazon Basin, however, it is always possible to obtain fresh seeds for large new plantings and buds for grafting from known high-yielding trees only. By

[1]Abstract from *Rubber Production in the Amazon Valley*, Trade Promotion Series No. 23, by William L. Schurz, commercial attaché, O. D. Hargis, special agent of the Department of Commerce, C. F. Marbut, chief of the Bureau of Soils, and C. B. Manifold, soil surveyor of the Department of Agriculture.

careful selection and cultivation with selective thinning out based on individual yields as the trees age, it should be possible to greatly increase the yield over that obtained when planting with unselected seeds. While no existing plantations can be compared in growth with those in the Middle East, there appears to be no reason why properly conducted plantations should not give even better results in South America.

Diseases and Pests

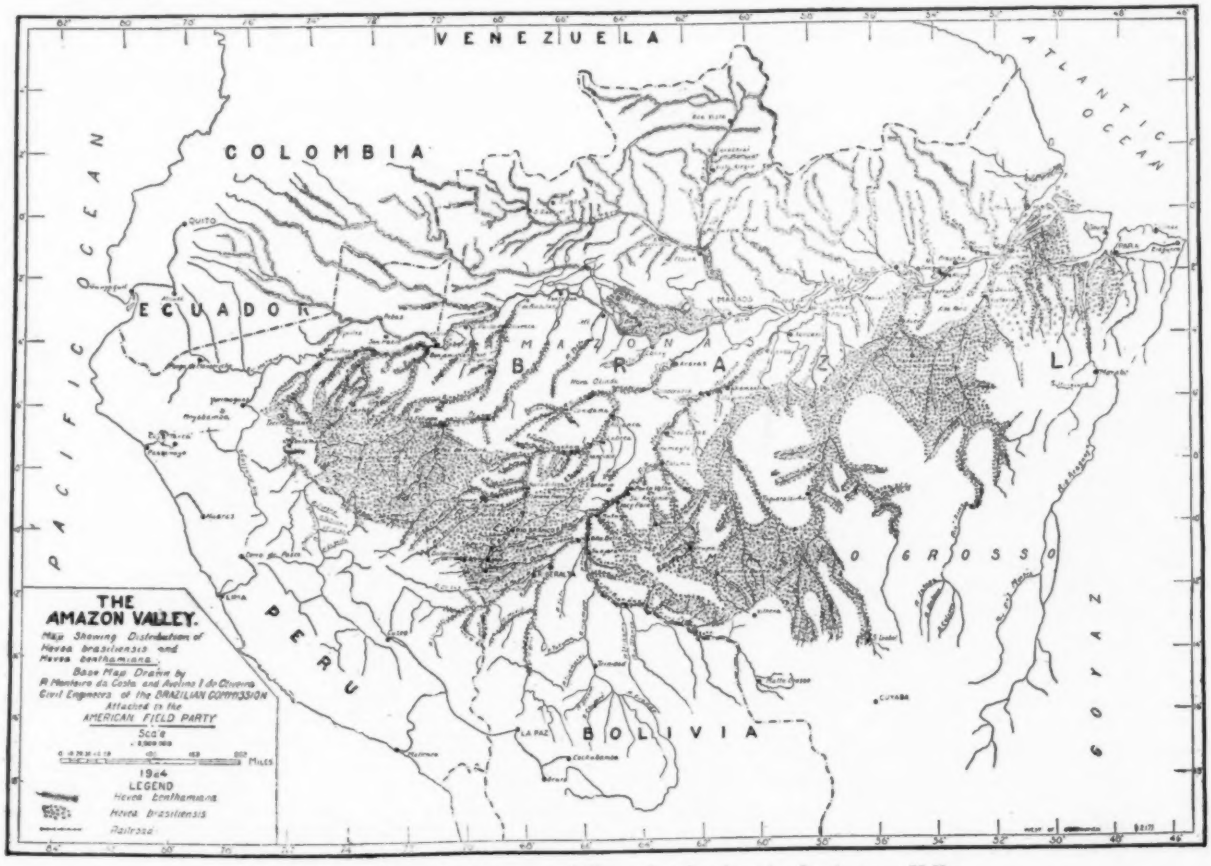
Outside the possible danger to be anticipated from the South American leaf blight, and the inroads of *sauba* ants, there is nothing to indicate that any more trouble might be experienced in the Amazon Valley than in Malaya and Sumatra. It is not known what damage might be expected from root diseases originating in stumps and roots left in the ground. Although wood-destroying fungi are present, there is no record of planted rubber trees having been destroyed by this agency in the Amazon Valley.

The South American leaf blight (*Dothidella ulei*) exists in sporadic cases over a large area in the Amazon Basin, but its effects on native forest trees are not very pronounced. It is most frequently observed on planted trees which stand close together.

Labor and Wages

The Amazon Valley is not favorably situated in respect to a labor supply. Although this territory embraces some 2,250,000 square miles, or about three-fourths the area of the United States, exclusive of Alaska, the population is estimated at 1,500,000, or considerably less than one inhabitant to the square mile. For large developments a sufficient labor supply would be a difficult matter on the upper rivers of Brazil and in Bolivia and Peru. In such localities the importation of outside labor would be necessary, the same as in most sections of the Middle East.

In the lower Amazon country the problem is not so acute. By mobilizing the present unemployed and floating population of the towns and cities it should not be difficult to secure some 30,000 good laborers, sufficient to open, plant and care for at least 150,000 acres of rubber. The most available recruiting grounds for additional labor are in the northeastern states of Brazil, such as Ceará and Maranhao. Immigrants from Ceará are the best laborers. Labor is most plentiful in the state of Pará, especially in those districts that border the Amazon and the lower reaches of its tributaries; it is relatively scarce in most of the state of Amazonas and in the Acre Territory, and very scarce in Matto Grosso. There is little surplus labor available in Bolivia, the situation in this respect being much better in Peru.



Distribution of Hevea brasiliensis and Hevea benthamiana in the Amazon Valley

The basic wage in the Amazon Valley depends on locality. In Peru it may be taken as equivalent to 62 cents U. S. per day; in Bolivia 45.4 cents U. S. per day; in Brazil, 25.75 to 42.2 cents U. S. per day. These amounts often include food as part payment. This compares with an average of 35 cents U. S. for Indian, Javanese and Chinese labor in the Middle East, which includes housing, sanitation, recruiting charges, etc., in the case of Indian and Javanese labor.

Health and Sanitation

Generally speaking there is probably no more healthful tropical region in the world than the Amazon Valley; if anything it

has natural advantages over the Middle East. Certain rivers in the valley have a bad reputation for malignant fevers. On the other hand many regions eminently suitable for rubber plantations are free from fevers and are comparatively healthful. Any area can be made healthful by the same method of drainage and sanitation employed in the Middle East. After a preliminary treatment for hookworm, and, if necessary, malaria, the native working populations will require no more medical supervision or attention than do the Chinese in the Middle East.

Capital Costs

The capital costs of bringing European owned rubber plantations into bearing in the Middle East range from $60 to $500 per acre, with an average around $250. Opening costs of rubber planted on forest soils with clean clearing, full equipment of buildings, roads, etc., will average $300 per acre. When grass or second-growth lands are opened the cost is less.

In the Middle East the direct labor cost of bringing an acre into bearing is 40 per cent of the total cost. In South America this proportion would be much higher. If taken at 50 per cent of the total costs, it would be approximately as follows per acre: Bolivia, clean cleared, $359.96; rough cleared, $258.16; Peru, clean cleared, $491.24; rough cleared, $352.30; Brazil, clean cleared, $203.94 to $326.30 according to rate of wages; rough cleared, $146.26 to $234.02. The above figures, of course, would vary with the current exchange rate.

Factors Affecting Opening Costs

The cost of opening a rubber plantation depends on several things, chiefly the following:

Local conditions: (1) Labor supply; (2) Accessibility of land to water transportation; (3) Cost of land.

Nature of land: (1) Topography—flat, swampy, undulating, hilly, etc.; (2) Nature of vegetation—virgin jungle or second growth.

Opening method adopted: (1) Simple felling, burning and planting or "clean clearing"; (2) Present system of clearing and planting in Amazon Valley.

Buildings: (1) Permanent, semipermanent, or temporary.

Food supplies for laborers: (1) Secured from outside sources; (2) Produced on the property.

Management: (1) Unforeseen contingencies during opening; (2) Favorable or unfavorable health conditions during opening.

Permanent buildings, such as warehouses, offices, and bungalows for managers and assistants will cost approximately the same as in the Middle East when exchange rates are considered. In the matter of housing labor there would be a great difference. The native of northern Brazil is accustomed to very little in the way of good housing.

As regards the actual cost of felling and clearing land for planting, it is very low compared with similar work in many other places. This is because the average Amazon jungle, although generally having dense undergrowth, is only one-half to two-thirds as heavy as the jungle of Malaya and Sumatra. The cost of felling, burning and clearing land for planting varies somewhat in different localities of the same country. In Bolivia the cost is $6.13 to $10.00 U. S. per acre; in Peru, from $11 to $12; in Brazil, from $6.70 to $9.37, except in the Madeira region where the cost may be as high as $12.50 to $16. All this is at the 1923 rate of exchange.

Land Tenure

Public lands suitable for rubber growing can be obtained in large tracts and at nominal prices in Pará, Amazonas, Matto Grosso, and in the Amazon region of Peru and Ecuador, but little unalienated land is available in the Acre Territory or in Bolivia, where any land acquired would probably have to be purchased from private owners.

In Bolivia a maximum of 20,000 hectares of land may be purchased at 1 *boliviano* per hectare, a special act of Congress being required for grants in excess of that amount.

In Peru public lands in unlimited amounts may be acquired by purchase at a price of 1 *sol* per hectare or may be leased up to 50,000 hectares. The National Congress may make extraordinary grants of public lands, fixing a nominal price.

In Brazil lands are either sold or leased, and in some cases provision is made for gratuitous grants. The area which may be ceded is commonly fixed by law. In Amazonas a person or company may acquire up to 10,000 hectares of State land (at 5 to 6 cents U. S. per hectare at present exchange). Larger grants of indefinite extent may be made by special action of the State Congress.

State lands with no specified limit as to quantity may be purchased or leased in Matto Grosso. Prices of land and lease charges are graduated according to the location of the land.

In Pará, State lands can be acquired by purchase, lease or gratuitous cession, special legislation being required for the last named. In case of purchase, prices are graduated according to the size of the area acquired, the minimum being fixed at about 20 cents U. S. per hectare. Provision is made for the perpetual lease of land of indefinite extent.

Land titles in many cases are conflicting in Brazil, and the legalization of titles will not be satisfactory until the Federal Government puts into effect the existing laws governing concessions and property rights.

Land Taxes

Taxes on land in the Amazon Basin are much lower at the present time than are rentals in the Middle East. In British Malaya the land rental per acre runs from $1 Straits ($0.54 U. S.) for the first year with a yearly increase up to a maximum of $4 Straits ($2.16 U. S.), subject to renewal every 30 years. In Sumatra the yearly rental is 50 *guilder* cents per hectare for the first year, up to 3 *guilders* in the sixth and following years ($0.08 to $0.48 U. S. per acre).

In Bolivia, Brazil and Peru the tax (or rental) is only a few cents per acre—so low as to be almost negligible. Special concessions covering a long period could doubtless be obtained.

Export Duties

Export duties, except in Peru, which at present imposes none on rubber, are higher in South America than in British Malaya, where the tax is approximately 1 cent U. S. per pound. Sumatra levies no duties on rubber shipments.

In Bolivia the export duty is based on London prices, and varies from 2 to 6 per cent when prices range from 25*d* to 48*d* and above. There is a proposal before the Bolivian Congress to change the scale to begin at 6*d* per pound with a tax of 4 per cent ad valorem, and to increase it to 12 per cent when the price is 46*d* and over.

In Brazil the export duty is one of the principal sources of revenue. In most states it is 10 per cent for "fina" and "entrefina," with a higher percentage for "weak" and scrap. Besides this tax, however, there are municipal, professional, sanitary and other taxes which run the total up to 18 per cent and above.

Political Status

Potential rubber plantation lands in the Amazon Basin are situated within the sovereign republics of Brazil, Bolivia, Peru, Ecuador, Colombia and Venezuela. Of these, only Brazil is a federated republic, with large powers vested in the component states, of which Pará, Amazonas and Matto Grosso comprise the actual rubber producing areas. The Acre Territory is directly subject to the Federal authority in Rio Janeiro. The Federal Government, as well as the three state governments, have expressed an active interest in the investment of foreign capital in the rubber plantation industry.

Molding Rubber Bottles, Bags and Caps

ORDINARY hand made water bottles, fountain syringe bags and bathing caps are cut from calendered sheet stock, seamed by hand and heater cured in soapstone. Several disadvantages are inherent in this method, among which may be mentioned, lack of uniformity of product incident to hand workmanship, absence of surface ornamentation, difficulty in securing brilliancy of color, and liability to failure by leakage at the seams.

Various systems of producing water bottles, bags and caps by the molding process have been developed to obviate the disadvantages mentioned, securing maximum quality and economy of material at minimum cost.

The process followed for making molded water bottles, etc., is that of press curing them on a metal form or core in a two-part mold. The usual preliminary work is done with special care. The rubber is compounded with selected ingredients, the fineness of which is protected by bolting all ingredients to eliminate grit and foreign matter. The colors used are those that will successfully withstand heat and the action of sulphur without change. One requisite for successfully molding the goods is that the stock be run to exact gages. This condition can only be met by running the stock on a heavy sheet calender. The goods are made entirely of die-cut sheet rubber stock without cloth of any kind in their construction. The material is cut with great rapidity and exactness from the rubber sheet by means of cutting dies.

In the case of water bottles the side pieces are shaped to provide the stock needed to form the hanging up tab at one end, and that required to embed the stopper fitting and form the funnel expansion for filling the bottle. In the case of fountain bags the piece for one side carries an extension for the tab while that for the other side does not. Stock for each side of a bathing cap has the same pattern.

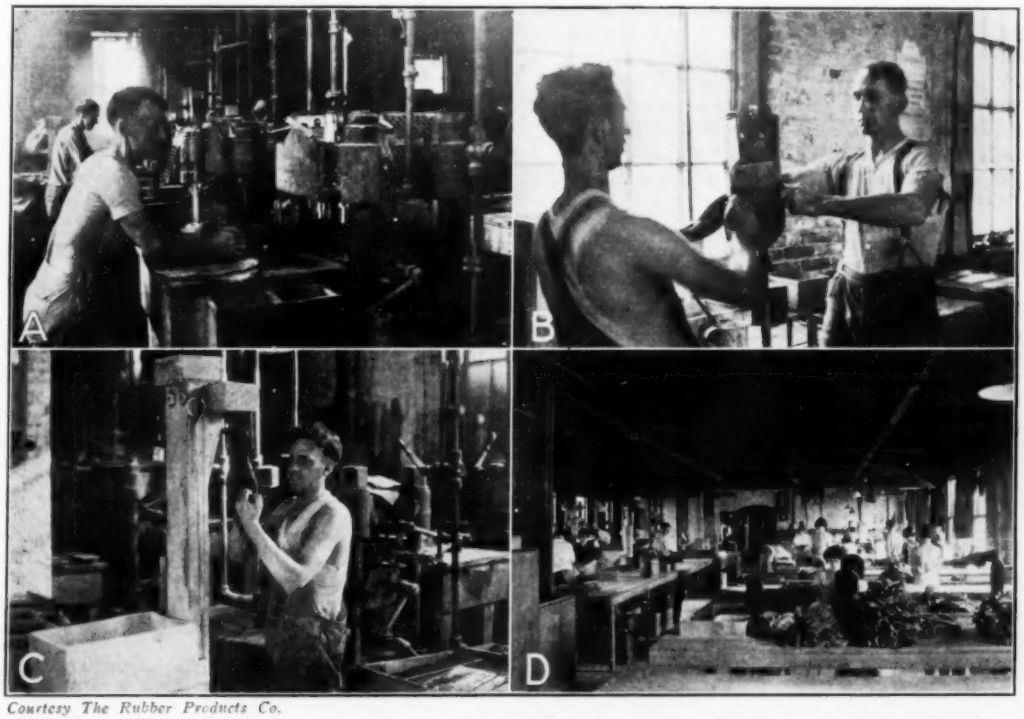
Speed and cost of production necessitate cutting the stock by means of a die press known as the clicking machine. This is a quick acting light power press under foot control. The striking part of the machine is swung over the cutting block to deliver a sharp blow to the cutting die as it rests in place on a series of piles of stock, and swung back for readjustment of the die for the next cut.

The cut stock requires but very little making-up preparatory to being cured into the seamless article. In the case of water bottles and fountain bags the appropriate metal fittings are enclosed in place between the flap extensions of the side pieces of the article, leaving the side edges unattached.

The molds for hollow goods formed over a core consist of two parts which encase the core and rigidly support it at one end so that the space between the core and the mold will insure a wall of definite gage or thickness.

Both cavity and core are highly polished to impart a perfect surface both inside and outside of the article. Engravings as fine and elaborate as desired are made in the molds, the impressions of which on the rubber produce ornamentation much more satisfactory than that by any other method.

The prepared stock received by the pressman is ready for molding without further make-up. His work consists essentially in slipping the parts, with their attached fittings, onto the appropriate core, next closing and pushing the mold between the press platens for seaming and curing the article. In the case of bathing caps no preparatory make-up is needed; the pressman has only



Courtesy The Rubber Products Co.

(A) Molding Water Bottles, Etc. (B) Removing Water Bottle from Core. (C) Removing Syringe Bag from Core. (D) Finishing and Packing Molded Water Bottles

to spread one side piece in the mold cavity under the core and a second piece over it before putting on the top half of the mold.

Picture A in the group illustration shows the press curing and molding operation in progress. Following the brief cure under accelerated conditions the molds are opened and the goods stripped from the cores. This work, as done on water bottles, fountain bags and bathing caps, is shown in pictures B and C. In all instances the core bearing the cured article is suspended from a hook on a heavy frame, thus allowing the pressman free use of both hands to reverse the article from the core. This is rendered easy by the use of a slicking or non-sticking preparation applied to both core and mold previous to insertion of the uncured article. The water bottle core is removed through the lower edge of the bottle. The opening thus left is closed subsequently by vulcanization, making that portion as perfect and seamless as any other.

In D is pictured a finishing department where the molded goods are turned right side out and receive such finishing as the insertion of grommets, trimming away of the mold fin, and packing.

Molded bottles, bags and caps embody several important advantages over those seamed up by hand. Briefly these practical points are, (1) the seamless construction signifies superior quality of material, (2) all fittings are securely molded in place and are non-leakable, (3) the inside and outside finish is superior to that by other methods, in particular the ornamentation is more effective and better done, (4) the goods are most elastic and durable in service because of their quality and seamless construction; (5) the condition of molding on a core insures a uniform product as to gage of wall with molded reinforcement where needed.

Foreign Trade Opportunities

Address and information concerning the inquiries listed below will be supplied to our readers through the Foreign Trade Bureau of The India Rubber World, 25 West 45th Street, New York, N. Y.

NUMBER	COUNTRY AND COMMODITY	PURCHASE OR AGENCY
17,408	Germany—Automobile tires	Purchase and agency
17,409	China—Low priced cord and fabric tires	Purchase
17,410	Egypt—Automobile tires, solid rubber tires for trucks, and tire accessories	Agency
17,417	England—Automobile tires	Agency
17,429	India—Waist belts, and rubber toys	Purchase
17,461	Palestine—Crêpe rubber soles	Purchase and Agency
17,470	Palestine—Balloon tires for automobiles, and tubes	Agency
17,500	Uruguay—Lead covered, and rubber covered wire, and bare copper wire	Purchase
17,506	Bolivia—Rubber novelties	Purchase
17,518	Germany—Automobile tires	Purchase
17,525	Germany—Automobile tires	Agency
17,541	Madeira—Automobile tires	Agency
17,546	Brazil—Rubber goods	Agency
17,574	England—Balloons and novelty rubber goods	Purchase and Agency
17,575	Sweden—Surgical rubber goods, especially rubber gloves and nipples	Purchase and Agency
17,577	Greece—Automobile tires	Agency
17,647	Egypt—Rubber goods	Agency
17,700	Denmark—Rubber padding for aviation suits, etc.	Purchase
17,701	Austria—Toy balloons	Purchase
17,702	Denmark—Battery cases, ebonite, and hard rubber strips for partitions	Purchase
17,709	South Africa—Bathing caps	Sole agency
17,725	Straits Settlements—Tires and tubes	Agency
17,739	Canada—Rubber bands, erasers, and specialties	Agency
17,773	Austria—Belting and rubber products	Purchase and Agency
17,786	China—Waterproof cloth for coats	Purchase and Agency
17,787	Germany—Rubber goods	Purchase
17,788	Lithuania—Rubber footwear	Agency
17,804	Dutch West Indies—Canvas top shoes	Agency
17,831	Germany—Rubber shoes, toys, novelties, etc.	Agency
17,869	Chile—Automobile tires	Agency
17,882	Honduras—Pneumatic and solid automobile tires	Agency
17,890	Austria—Tires and friction tape, boots and shoes	Agency
17,907	Australia—Toy balloons	Purchase and Agency
17,909	France—Rubber thread, nipples, children's garment protectors, druggists' sundries, and toys.	Purchase and Agency
17,910	Germany—Aprons, gloves, and covers of rubber.	Purchase
17,911	Austria—Boots and shoes, erasers, toys, rubberized piece goods, and bands	Agency
17,922	Denmark—Ebonite sheets or plates	Purchase
17,923	Norway—Canvas rubber-soled shoes, overshoes, and rubber heels	Agency
17,929	China—Rubber goods	Purchase

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

NUMBER	INQUIRY
683	Course in rubber manufacturing and chemistry.
684	Source of supply of washed, dried and compounded rubber.
685	Manufacturers of skived edge rubber patches.
686	Rubber flooring machine y.
687	Makers of machine to cut rubber thread for elastics.
688	Collapsible tube manufacturers.
689	Self sealing or puncture proof pneumatic tire.
690	Trimming machine for hot water bottles and molded diving caps.
691	Molded sponge rubber.
692	Makers of automatic comb cutting machines for hard rubber.
693	Manufacturers of "Gummite".
694	Source of supply for hot water bottles.
695	Dry heat vulcanizing room.
696	Manufacturers of rubber goggles for motorists.
697	Manufacturers of tire fillers.
698	Cellular rubber ace makers.
699	Source of supply of oleic acid.
700	Salisbury spreader.
701	Rubber footwear repair equipment.
702	Manufacturers of winding machines for golf balls.
703	Name of manufacturers of Di-ortho-colyl-thiourea.
704	Concerns in Midwest that make dipped goods.
705	Catalogs on driers and tapping knives.

Foreign Trade Circulars

Special circulars containing foreign rubber trade information are now being published by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C. The publications which give details of the rubber industry in some one country are marked with an asterisk.

NUMBER	SPECIAL CIRCULAR
1010	"Tire Exporters' Weekly News Letter."
*1016	"September Imports of Rubber Tires."
*1017	"September Imports of Golf Balls."
1020	"Tire Exporters' Weekly News Letter."
*1021	"Crude Rubber Reexports From United States, September."
*1024	"Dealers' Stocks of Automobile Tires, October 1, 1925."
1026	"Tire Exporters' Weekly News Letter."
1031	"Tire Exporters' Weekly News Letter."
*1032	"British Exports of Automobile Casings During September and First Nine Months of 1925."
*1033	"Rubber Footwear Exports from United Kingdom During September and First Nine Months of 1925."
*1036	"French Rubber Footwear Exports During First Nine Months of 1925."

ECUADOR'S EXPORTS OF RUBBER

Ecuador's exports of all commodities increased in value during 1924, the United States continuing to be the chief market, and taking 25 per cent of the total exports in weight and over 35 per cent in value. Ecuador's shipments of crude rubber to all countries totaled during 1924, 524,235 gold sucres, the value of the gold sucre being $0.4867.

AMERICAN EXPORTS FOR SEPTEMBER OF PNEUMATIC CASINGS FOR automobiles, inner tubes, and solid tires for automobiles and motor trucks reached a total value of $2,802,089, as compared with $1,301,842, the corresponding value for September, 1924. Exports of these goods for the nine months ended September, 1925, had a value of $19,658,294, as against $14,808,900, the value for the nine months period of the year previous.

W. B. WIEGAND HAS JOINED BINNEY & SMITH CO., 41 E. 42ND street, New York, N. Y., and will be associated with D. F. Cranor in the research and development department. Mr. Wiegand needs no introduction to the trade, as he has been an outstanding figure in rubber compounding for a number of years, and is recognized as a leading rubber physicist. He will make his headquarters at the company's main office, but his work in connection with this department may necessitate part of his time abroad.

Tire Factory Manufacturing Costs—V[1]

Production Centers—Factory Overhead Distribution—Machine Hour Rates

By Joseph J. Dawson

THE tire factory lends itself readily to division into production centers rather than departments. The general idea is to divide it into about five departments: namely, mill, tire building, vulcanizing, tube, and airbag, each having a foreman or superintendent. This segregation is fairly satisfactory but its fault lies in the fact that there is insufficient means of checking the foreman. His department may be efficient in comparison with the same or similar departments but it would be infinitely more efficient were the proper control exercised. When the control is too broad and the supervision too scant, it is a case of consulting the foreman for advice concerning the existing evils in his department, rather than pointing them out to him.

Production Centers

The remedy for correcting these conditions is to divide the entire factory into small units, wherein an operation or several operations of the same or similar types can be individually studied. These small units are termed production centers. This classification not only produces maximum results from an operation cost standpoint and for calculation of inventories, but it also indirectly aids the foreman in accomplishing closer supervision by showing up in their proper relation to the production, actual and ofttimes unbelievable expenses, that are the direct cause of most of the ultracostly operations.

The use of production centers is more vital to the small factory than to the larger one, for in the latter the natural departmental divisions follow operation lines, while in the former there is not sufficient work to warrant a great number of departments with the necessary supervision. Following the methods employed by the larger operator is not desirable for the small producer. However, in this particular instance, the small manufacturer can successfully emulate in a small way the general idea used by his larger competitors.

To successfully operate a cost or production system it is first necessary to become thoroughly acquainted with the factory operations and general conditions. Thus it is possible to classify operations and to decide at what points in the manufacturing procedure, unit cost, work in process inventories, and production statistics are to be desired. The tire factory readily divides itself into fifteen separate and distinct operating units, each contributing some component part to the final assembly. These fifteen production centers and the departments with which they will usually associate themselves are as follows:

MILL ROOM: (1) Washing; (2) Drying; (3) Compounding; (4) Milling; (5) Calendering; (6) Treads (tubing machines); (7) Beads.

TIRE BUILDING ROOM: (8) Cutting; (9) Assembling; (10) Tire Building; (12) Inspecting and Wrapping.

VULCANIZING ROOMS: (11) Vulcanizing.

TUBE ROOM: (13) Tubes; (14) Air Bags; (15) Flaps.

Having decided upon the grouping of operations, and the division of the factory into producing units, the next step is to inventory each production center and lay it out as if it were a complete department in itself. If a plan of the factory floor is available the floor space occupied by each unit can be charted and the area calculated. Information regarding the machinery, horse power of electric motors, steam and water consumption, number of people employed, and heights of the ceilings on the different floors of the building should be listed and segregated under the respective center to which it applies.

All of the above data should be compiled for all non-productive departments such as receiving, maintenance, shipping, warehouses, etc. These departments must bear a share of many of the expenses, and unless care is exercised, the resulting records will be practically worthless. If the foregoing work is properly executed the result will be the maximum of dependable distribution with the minimum amount of effort.

Factory Overhead Distribution

The average factory has the following general items of factory overhead: Rent, Steam, Power, Depreciation of Plant, Depreciation of Machinery, Repairs and Maintenance, Superintendence, Operating Expense, and Plant Expense. Every department or production center has its corresponding payroll accounts. The distribution and analysis of the payroll was previously explained and stress was laid on the accuracy and care with which the work should be done. The production centers should be isolated and this isolation maintained by using individual analysis sheets for each center. The items of expense such as indirect labor, supervision, clerking, inspection, service, etc., were thoroughly explained and the importance of retaining distinct dividing lines and departmental proofs was advised. If this work was properly carried out the handling of the indirect labor expense will be relatively easy, simply being a case of posting the figures from the payroll analysis to the accounts of the respective production centers.

If the classification of the production centers is properly carried out and all of the necessary data and statistics collected, it will be easy to properly distribute all of the other factory expense items along the lines recommended in the following paragraphs.

RENT is an item which is the subject of much discussion as the average factory is owned by the corporation conducting the business. Nevertheless, rent would have to be paid by the corporation were the building not so owned. This item varies to a great extent, dependent on the location of the business and prevailing prices of space in that locality. The common sense method of distributing such a charge is on the basis of area, or per square foot.

STEAM has two uses in the rubber factory, one for production purposes in heating rolls of mills, calenders, drying machines, etc., also for curing purposes; and the other for heating. The former is by far the greater expense and if possible meters should be placed on the lines feeding production operations. However, the summer figures, when no steam is used for heating, can be used as a constant for charging production departments. Steam for heating purposes can be charged on a basis of area, that is per square foot, providing the ceilings of all of the floors are nearly the same height, but if there is a great variance in the height of the ceilings it should be charged on a cubic foot basis.

POWER is a rather difficult item to distribute with any degree of accuracy if the plant is operated by steam, and the only practical method is to set a predetermined percentage of the total power cost for each production center. This percentage should be based on the departmental consumption according to the dictates of experience. If the factory is operated by electric power the distribution is a simple matter as the basis should be on the

[1] Continued from *The India Rubber World*, July 1, 1924, 653-654.

horse power of the motors driving the machinery located in each center.

DEPRECIATION OF PLANT is distributed on the basis of area, by square foot, the gross figures being calculated on the investment after the term in which the cost of the plant is to be written off has been determined.

DEPRECIATION OF MACHINERY rates are calculated in essentially the same manner as that of the plant, except that here the basis of distribution is the actual machine value of the machinery contained in each given production center.

REPAIRS AND MAINTENANCE should be calculated in two ways. It must be remembered that the maintenance department is in reality comparable to any other production department of the factory, as it occupies space, has a payroll of its own, must pay for supplies, and has practically all of the expenses of an operating department. These expenses are distributed in the same manner as that suggested for the production centers and the total of all these charges make up the maintenance expense. A machine order should be issued for all repairs to machinery and the cost of this work should be charged directly to the department in which the machine is located. The balance of the maintenance expense after the machine orders are deducted should be distributed on a square foot basis over all the production centers.

SUPERTENDENCE is made up of the salary of the superintendent and a proportionate share of the general manager's salary, usually one half, and is charged to the different units on a per-capita basis, that is by the number of employes in each center.

OPERATING AND PLANT EXPENSE are usually very small items of overhead and as a rule it is rather hard to separate them. Technically, the former represents small items of expense necessary to the operation of the plant while the latter covers small items necessary to the upkeep of the factory. These two expense items are both considered on the square foot basis.

There are two or three cases in the plant operation where expenses that appear on the general books as administrative overheads actually originate in the factory itself. These items are storage expense, receiving, shipping, and packing expense. All of these departments represent a similar condition to that of the maintenance department and should be treated in the same manner.

Machine Hour Rates

There is another method of charging factory overheads that is quite extensively used and is known as the machine hour rate method. It is in a way the same as the production center method, yet mention is seldom made of segregating the operations or the machines upon which they are performed into any set groups. In reality the calculation of costs as obtained from this method automatically accomplishes the segregation.

The value of each machine is set and its depreciation is calculated; the power necessary to operate it, the charges for the space it occupies, the superintendence, maintenance charges, and all other expense items are figured the same as for the production centers except that in this case the unit is the machine. After all of these expense items chargeable to the individual machine have been tabulated, the cost to operate the machine for one hour is obtained. An operation performed on the machine requiring one hour's time is charged with this amount in addition to the actual payroll cost of the man operating the machine. Idle time or time when the machine is not running or broken down reverts as an additional charge to the final profit and loss statement. It will be readily seen that this method is practically subject to discard as far as the tire factory is concerned owing to the theoretical manner in which it is originally calculated and the unreliability of costs derived from such a basis.

Of course if the principle was correctly applied, and the human factor did not enter into the calculation, the results derived from the two methods would be exactly the same. But it must be remembered that in order to attain any degree of despatch in closing the books at the end of an accounting period it is utterly impossible to use current actual figures for overhead on the machine hour method. The best condition that could ever exist would be to base such figures on the expenditures of the previous month. Anyone who is familiar with manufacturing knows that there are very few expenses that remain constant, and the consequence of the whole situation is that under this method an accounting period showing an extra heavy production would enjoy the distribution of expenses covering a much smaller production and vice versa. After carefully weighing both sides of the case, there is no doubt that the production center idea is the only true way of controlling the expense situation in tire manufacturing.

Legal Decisions

Patents

JONES, JR., VS. MIDGLEY AND NAYLOR. Court of Appeals of District of Columbia. Appeal from Patent Office. No. 1,718. Decided April 6, 1925.

This relates to a process for vulcanizing pneumatic tires by the use of a hollow core so constructed as to permit the passage of hot water practically through its entire circumference. Evidence showed that the appellees were producing and using such cores in January, 1919, while February 6, 1919, was the date of conception and disclosure by the appellant. The former decision of the Commissioner of Patents was therefore affirmed, and priority of invention was awarded to the appellees.—United States Patent Office, *Official Gazette*, Vol. 339, October 20, 1925, page 502.

IN RE THE GOODYEAR TIRE & RUBBER CO. Court of Appeals of District of Columbia. Appeal from Patent Office. No. 1,705. Decided April 6, 1925.

This relates to the decision of the Commission of Patents denying registration of a trade-mark consisting of certain diamond-shaped projections. As Section 5 of the Trade-Mark Act of 1905 provides "that no mark shall be registered which consists merely in devices descriptive of the goods with which they are used," the former decision of the Commissioner of Patents was affirmed.—United States Patent Office, *Official Gazette*, Vol. 339, October 27, 1925, page 764.

Customs Appraisers

No. 50327. Protest 79532—G of F. W. Woolworth (Los Angeles). Rubber balls classified at 70 per cent ad valorem under paragraph 1414, tariff act of 1922, are claimed dutiable at 30 per cent under paragraph 1402. Opinion by Sullivan, G. A. In accordance with stipulation the rubber balls in question were held dutiable at 30 per cent under paragraph 1402 on the authority of United States *v.* Stewart (12 Ct. Cust. Appls. 533; T. D. 40734).—*Treasury Decisions*, Volume 48, No. 18, page 52.

No. 50393. Protests 30379—G and 96720—G, etc., of B. Illfelder & Co. (New York). Rubber balls classified as toys at 70 per cent ad valorem under paragraph 1414, tariff act of 1922, are claimed dutiable at 30 per cent under paragraph 1402. Opinions by Sullivan, G. A. On the authority of United States *v.* Stewart (12 Ct. Cust. Appls. 533; T. D. 40734) the rubber balls in question were held dutiable under paragraph 1402 as claimed.—*Treasury Decisions*, Volume 48, No. 19, page 37.

DURING THE FIRST NINE MONTHS OF 1925 THE UNITED STATES imported from the Straits Settlements, Ceylon, and India, 531,734,000 pounds of crude rubber, the estimated value being $212,296,000.

Dealers' Stocks of Automobile Tires, October 1, 1925[1]

MARKING a continuation of its program of compiling information about the domestic distribution of important commodities, the Department of Commerce has made its third semi-annual survey of stocks of automobile tires and inner tubes held by dealers in the United States. Individual returns from 35,331 dealers having automobile casings on hand are used in this final compilation; of these 16,240 dealers reported stocks of balloon casings for 20- 21- and 22-inch wheels. The statistics for October 1, 1925, compared with October 1, 1924, are shown herewith.

The average stocks of casings are only slightly greater now than they were a year ago, but stocks of inner tubes are much heavier than in October, 1924. The percentage of dealers stocking balloon casings for 20-, 21- and 22-inch wheels was not ascertained in 1924, but in April, 1925, only 30 per cent of the dealers carried balloon tires as compared to 46 per cent in October, 1925. Balloon tires now constitute one-seventh of the total stocks reported as compared to one-fourteenth in April 1925. Stocks of solid and cushion tires appear to be almost normal.

The existence of larger stocks at this time in the hands of manufacturers should be considered in connection with the increased stocks in the hands of dealers. The accompanying statistics prepared by the Rubber Association of America, Inc., represent seventy-five per cent of the tire manufacturing industry.

Assuming these statistics for casings and inner tubes to be 75 per cent complete for the entire American tire industry and raising them to 100 per cent, manufacturers' stocks on October 1, 1925, appear to be about 1,674,000 casings and 1,685,000 inner tubes larger than on October 1, 1924. Manufacturers now hold about 10,000 more solid and cushion tires than a year ago. Consideration of these facts should be valuable in connection with planning tire production during the coming six months.

[1]Special circular No. 1024, Rubber Division, Department of Commerce, Washington, D.C.

DEALERS' STOCKS OF AUTOMOBILE TIRES

	October 1, 1925			October 1, 1924		
	Number	Dealers Reporting	Average Per Dealer	Number	Dealers Reporting	Average Per Dealer
Total casings	2,000,150	35,331	56.6	1,402,879	26,161	53.6
Balloon casings	283,553	16,240	17.5	135,366	8,305	16.3*
Inner tubes	3,486,120	35,163	99.1	2,197,553	27,480	79.9
Solid and cushion tires	53,060	2,122	25.0	30,538	1,449	21.1**

*Including interchangeable balloons for October 1, 1924.
**Solid tires only for October 1, 1924.

DEALERS' STOCKS OF AUTOMOBILE TIRES BY STATES, OCTOBER, 1, 1925

	Total Tires			Balloon Tires		Inner Tubes		
	No. of Dealers Reporting	No. of Tires on Hand	Average No. Per Dealer	No. of Dealers Reporting	No. of Tires on Hand	No. of Dealers Reporting	No. of Tubes on Hand	Average No. Per Dealer
Alabama	328	24,694	75.3	138	2,638	326	41,336	126.8
Arizona	163	8,390	51.5	82	1,210	159	14,602	91.8
Arkansas	472	18,640	39.5	179	2,430	490	40,916	83.5
California	1,900	146,377	77.0	911	19,776	1,847	232,861	126.1
Colorado	488	25,783	52.8	224	4,334	495	47,863	96.7
Connecticut	363	22,443	61.8	164	2,679	351	37,474	106.8
Delaware	75	4,223	56.3	25	486	76	8,446	111.1
Dist. Columbia	56	5,338	95.3	32	818	55	10,704	194.6
Florida	312	23,726	76.0	144	4,203	321	44,121	137.4
Georgia	382	20,959	54.9	150	3,079	380	40,087	105.5
Idaho	267	10,933	40.9	135	1,829	268	18,974	70.8
Illinois	1,905	112,112	58.9	893	16,240	1,902	192,515	101.2
Indiana	1,329	73,041	55.0	631	9,717	1,314	138,755	105.6
Iowa	1,375	68,156	49.6	700	7,531	1,375	120,994	88.0
Kansas	1,008	59,372	58.9	539	7,324	1,006	94,435	93.9
Kentucky	463	28,935	62.5	181	3,254	478	57,695	120.7
Louisiana	287	13,987	48.7	110	1,867	299	30,334	101.5
Maine	523	18,625	35.6	181	2,468	520	28,818	55.4
Maryland	377	15,687	41.6	146	1,901	382	29,141	76.3
Massachusetts	957	85,203	89.0	512	14,680	974	148,471	152.4
Michigan	1,405	79,856	56.8	744	14,709	1,392	157,877	134.1
Minnesota	1,227	53,300	43.5	477	6,108	1,138	92,711	81.5
Mississippi	314	16,867	53.7	135	2,179	325	30,639	94.3
Missouri	1,206	67,071	55.6	471	8,575	1,214	114,452	94.3
Montana	320	13,894	43.4	174	2,322	320	27,117	84.7
Nebraska	659	42,014	63.8	334	5,161	657	74,997	114.2
Nevada	63	3,776	59.9	37	486	63	6,083	96.6
New Hampshire	237	8,154	44.1	116	1,408	236	14,603	61.9
New Jersey	657	42,197	64.2	333	7,107	652	78,504	120.4
New Mexico	173	7,611	44.0	64	1,184	176	14,294	81.2
New York	2,104	147,006	69.9	1,011	21,874	2,126	250,954	118.0
No. Carolina	500	28,481	57.0	192	2,939	513	60,053	117.1
No. Dakota	471	14,321	30.4	220	1,950	468	25,339	54.1
Ohio	2,198	140,395	63.9	1,031	18,862	2,134	195,956	91.8
Oklahoma	698	41,439	59.4	360	7,492	686	86,886	126.7
Oregon	436	27,056	62.1	217	3,895	429	40,829	95.2
Pennsylvania	3,135	152,830	48.7	1,320	22,361	3,074	264,827	86.2
Rhode Island	132	6,568	49.8	49	867	133	10,673	80.2
So. Carolina	278	11,562	41.6	89	1,208	280	24,983	89.2
So. Dakota	460	18,339	39.9	237	2,847	451	32,688	72.5
Tennessee	436	20,224	46.4	270	2,944	468	40,870	87.3
Texas	1,168	80,898	69.3	563	11,400	1,180	147,215	124.7
Utah	150	7,991	53.3	63	1,260	142	12,272	86.4
Vermont	193	6,616	34.3	85	899	190	10,318	54.3
Virginia	799	31,923	40.0	243	3,927	805	59,387	72.1
Washington	709	38,818	54.8	308	5,974	695	58,059	83.5
West Virginia	485	21,660	44.7	170	3,084	492	40,093	81.5
Wisconsin	1,235	61,250	49.6	647	8,983	1,256	99,241	79.0
Wyoming	148	6,177	41.7	89	997	146	10,936	74.9
Unallocated	305	15,202	49.8	114	2,086	304	24,722	81.3
Total	35,331	2,000,150	56.6	16,240	283,552	35,163	3,486,120	99.1

DEALERS CLASSIFIED BY VOLUME OF STOCK

Casings	Per Cent of Total Dealers Reporting	
	October 1, 1925	October 1, 1924
Less than 10	22.63	23.19
From 10 to 25	29.88	32.11
26 to 50	21.23	22.65
51 to 100	14.79	13.70
101 to 200	7.02	5.49
201 to 300	1.99	1.44
301 to 400	.83	.52
401 to 1,000	1.24	.64
Above 1,000	.39	.26
	100.00	100.00

NUMBER OF MAKES OF TIRES HANDLED

In Stock	October 1, 1925		October 1, 1924	
	No. of Dealers	Per Cent of Total	No. of Dealers	Per Cent of Total
One make	14,392	41.64	10,338	40.2
Two makes	12,626	36.53	9,564	37.2
Three makes	5,218	15.10	3,911	15.2
Four makes	1,609	4.65	1,262	4.9
Five makes	524	1.51	450	1.8
Six makes	196	0.57	176	0.7
	34,565	100.00	25,701	100.0

MANUFACTURERS' STOCKS OF TIRES

	Automobile Casings	Inner Tubes	Solid and Cushion Tires
September 30, 1924	4,524,405	6,038,868	179,927
*September 30, 1925	5,779,822	7,302,643	189,448

*Preliminary statistics.

The preceding table was prepared from the reports of 34,565 dealers who stated the number of makes of tires which they carry in stock as six or less. A comparison is made with the reports of 25,701 dealers who reported on this subject in October, 1924. It would appear that the trend is still toward specialization on a single make, which is quite in line with good merchandising policy. Unless the increased service of the dealer to the customer from carrying a diversified stock is financially profitable, the carrying of several makes is not economically justifiable. Over 78 per cent of the dealers reported not more than two makes of tires in stock on October 1, 1925, indicating a relatively high degree of specialization.

Of the 36,797 dealers reporting, 28,651 sell accessories, 24,173 sell tire repair materials, and 10,686 operate repair departments.

The Vultex Process

Vulcanization of Latex

By Philip Schidrowitz

RUBBER latex is a milky, non-viscous fluid in which the rubber is present in the form of globules or particles which are in colloidal suspension or "solution." Some few years ago it was found by the writer[1] that latex could be vulcanized, that is to say, the crude rubber in the latex could be converted into vulcanized rubber, *without coagulation taking place*.

Vulcanized latex is, like raw latex, a mobile, non-viscous fluid in which the rubber particles are in Brownian movement. There has been some alteration in the shape and appearance of the particles as seen under the microscope and the movement has intensified somewhat but externally there is very little difference in appearance between the raw and the vulcanized fluid. The fundamental difference between raw and vulcanized latex may best be understood if it is pointed out that when raw latex is evaporated a film of crude rubber results, while if vulcanized latex is evaporated, a film of vulcanized rubber is obtained. A little thought will make it apparent to the practical rubber man that in this fact lies the germ of great commercial possibilities. At first it may seem remarkable that only quite recently it has been found that latex could be vulcanized. It did not appear at all likely to the chemist that such a profound change as the vulcanization of rubber could take place in latex without producing coagulation, moreover, having regard to the extreme insolubility of sulphur in water, the conditions necessary for vulcanization—quite apart from the question of coagulation—did not seem of an alluring character.

Preliminary Experiments

The first trials were made with polysulphides which being water soluble and containing, if not actual "free" sulphur, the next best thing, seemed the most likely materials to achieve the object in view. After preliminary trials which were necessary to obtain suitable conditions to prevent coagulation (e. g. degree of alkalinity, or absence of acidity, dilution, duration and degree of heating, etc.) it was found that it was possible to obtain hot cured uncoagulated latex showing actual Brownian movement which, on evaporation, coagulation or precipitation yielded vulcanized rubber.

Vulcanization with Sulphur

In the next set of experiments, sulphur ("flowers," precipitated and "colloidal") was substituted for the polysulphides, and after appropriate adjustment of the conditions, well cured, uncoagulated latex was obtained with all these varieties. The rapidity and degree of vulcanization depends (Davey[2]) on the nature of the sulphur; and regarding the fact that water insoluble sulphur was found to be active, one would naturally anticipate this to be the case. By selecting suitable conditions, well cured rubbers containing up to and over 3 per cent of "combined" sulphur were obtained, and as shown by the stress strain curve method and by estimations of combined sulphur, the process is a progressive one.

[1]English patents, 193,451, 208,235, etc. United States patents 1,443,149, 1,502,686, 1,530,164.
[2]*Journal Society Chemical Industry*, Vol. 42, 50, p. 473-484 T.

Vulcanizing at Low Temperatures

Having found at first that it was possible to vulcanize latex by means of sulphides or sulphur by the ordinary vulcanizing conditions it was observed that vulcanization could be effected at quite low temperatures.[3] By using suitable accelerators and activating conditions, full vulcanization can be attained in less than 24 hours at a temperature not exceeding 40 to 50 degrees F., that is a low winter room temperature, or more quickly at higher temperatures.

Changes in the Latex During Vulcanization

Hauser[4] has studied the visible changes which occur in latex during vulcanization by means of the application of the most recent microscopic methods and states that:

The same questions were also studied in vulcanized latex prepared by the Schidrowitz hot and cold (i. e. vulcanized at low temperatures) processes, both from fresh and preserved latex. It was possible to follow systematically the process of vulcanization by changes in the shape and physical consistency of a single particle in a cold-cure vulcanization of fresh latex. The viscosity first decreases and then rises rapidly till the two phases (skin and liquid interior) can no longer be discerned, the tails disappear, and the particle appears solid throughout. The change is from an easily deformable plastic particle to an elastic, resistant particle which in over-vulcanization becomes crumbly and may even break up.

In vulcanized latex the tails have disappeared, the particles being more spherical and the Brownian movement slightly more rapid. The outline of the particle appears more clear cut, though the protein adsorption layer is still present and can be removed as from unvulcanized latex. Further, the particles in vulcanized latex will not absorb benzene and show no swelling effect. These experiments leave absolutely no doubt that in vulcanized latex the process of vulcanization is already complete, and that the particles have already undergone a marked change. In my opinion this evidence quite definitely supports the theory of vulcanization as a chemical combination.

Other writers have also emphasized the importance of the vulcanization of latex in regard to the theory of vulcanization; for instance Van Rossem[5] says:

This subject is of great interest both from a scientific and an industrial standpoint. . . . There is no doubt that this process will contribute materially to the explanation to elucidate our conception of the vulcanization change. . . .

Nature of Vulcanized Latex Rubber

It will be remembered that crude rubber articles made by the natives of Peru and Bolivia from uncoagulated latex by evaporation have stood the test of centuries, and that "fine hard" possesses a span of life beyond that of any comparable manufactured rubber. Vulcanized latex rubber possesses similar advantages in relation to comparable vulcanized rubber made from

[3]Compare English patent 208,235.
[4]*India Rubber Journal*, September 27, 1924, p. 725; *Kolloid-Zeitschrift* 36, Supplement pp. 15-36.
[5]*Journal Society Chemical Industry and India Rubber Journal*, December 6, 1924, p. 1123.

ordinary crude by the dry process. During the past 3 to 4 years many comparative tests have been carried out both in temperate and tropical climates, by natural, and accelerated aging and by exposure to weather and light with eminently satisfactory results. To illustrate this, the following figures obtained from tests in which thin sheet latex rubbers were compared with both hot and cold cured, high grade cut and spread sheet rubbers made by the ordinary process. The comparison was between several latex (0.2 to 0.3 mm. thick) sheets and some half dozen cut and spread sheets of the best quality obtainable, of similar thickness and selling (wholesale, with crude at about 1*s* 3*d*) at 5*s* to 7*s* 6*d* per pound to the trade. As the latex sheets were all transparent and some of the trade samples were practically opaque, the conditions —so far as light aging is concerned—were favorable to the latter.

Original Properties	Vulcanized Latex Sheets	Ordinary Trade "Cut" and "Spread" Sheets
Break	3,200-4,000 lbs.	1,530-2,500 lbs.
Elongation at break	9.7 to 10.2	8.3 to 11.1
Slope (type)	34 to 36	36 to 45
Heat aging (accelerated)		
35 hours	Excellent condition.	Considerable deterioration.
70 hours	Excellent condition (breaks 2,000 lbs. and over).	All poor (breaks 400-1,000 lbs.).
Light (natural) aging 20 days	Slight deterioration only (breaks 2,450 to 3,150 lbs.).	2 samples broke at 140 lbs.; the best (originally 1,619 lbs.) at 1,220 lbs.
35 days	All still in fair (commercial) condition.	All quite rotten.

The conditions of light aging were pretty severe and consisted in exposure in a glass window during a hot summer period. All the above tests were carried out on a strictly comparative basis.

With regard to the "breaks" (tensiles) it should be noted that these were obtained by the ring method of testing. According to publications on this subject the results for pure rubbers are something like 20 to 25 per cent higher when examined by the straight (dumbbell) test piece method.

The record tensile for a vulcanized latex sheet rubber obtained by me is not far short of 5,000 for a pure mix. If we assume a 20 per cent higher figure for the straight test piece, this result, according to American standards would be in the neighborhood of 6,000 pounds. The highest figure (ring) I have obtained for an ordinary, ultra accelerated, pure mix, is distinctly lower than this, namely about 4,500 pounds or say, 5,400 pounds on the American scale.

Durability of Proofings

Similar results have been obtained with proofings. For instance a certain red latex proofing was artificially aged (at 160 degrees F.) for 240 hours and then exposed to a strong light for several months. At the end of this period there was no sign of hardening or cracking and not the slightest odor of "perishing." In the tropics (Malaya) thin sheet rubbers and proofings have been exposed to the weather (i. e. out of doors and without protection) for prolonged periods with, having regard to the conditions, equally satisfactory results. Commercial surgical sheetings stand up to repeated sterilization where similar lines made by the old process fail. Thin commercial rubber such as dam and dressings can be used in the tropics under conditions where the ordinary grades are useless.

Thus we have with latex some real new uses. Naturally some mixes have behaved better than others. Sheets prepared in one way have outlasted sheets prepared in another manner, and so on, but the whole trend of the evidence both in the laboratory and commercially is convincingly in the direction that vulcanized latex rubbers will easily outlast ordinary rubbers when similar grades and conditions are in question.

The nature of the various lines produced may be gathered from the following list: Proofed Goods: Hessians, bed-sheetings, printed cottons and jap silks (single and double proofed, for garments), indianas (single and double proofed), lawns, silks. Made-up Articles: Surgeons' coats, dental aprons, cot-sheets, air-pillows, sponge bags, hold-alls, air-cushions, beds, etc. Sheet Rubber: pouch rubber (various colors), bathing cap rubber, linings, curtains, straps, dental dam, mats, surgical dressings, garments, waders, etc.

Statistics Compiled from 1925 Questionnaire Covering the Third Quarter of 1925[1]

	Long Tons		
Reclaimed Rubber	Inventory at End of Quarter	Production	Shipments
Reclaimers solely (7)	1,213	19,930	20,961
Manufacturers who also reclaim (19)	3,321	11,979	8,949
Other manufacturers (61)	3,228	.....	.....
Totals	7,762	31,909	29,910

	Long Tons		
Scrap Rubber	Inventory at End of Quarter	Consumption in Manufacture Reclaimed	Due on Contract at End of Quarter
Reclaimers solely (7)	41,011	23,234	12,513
Manufacturers who also reclaim (19)	28,521	17,546	9,239
Other manufacturers (21)	5,277	.....	.....
Totals	74,809	40,780	21,752

NUMBER OF TONS OF CRUDE RUBBER CONSUMED IN THE MANUFACTURE OF RUBBER PRODUCTS AND TOTAL SALES VALUE OF SHIPMENTS OF MANUFACTURED RUBBER PRODUCTS

Products	Number of Tons of Crude Rubber Used	Total Sales Value of Shipments of Manufactured Rubber Products
Tires and Tire Sundries:		
Automobile and motor truck pneumatic casings	56,459	$169,230,000
Automobile and motor truck pneumatic tubes	15,432	36,721,000
Motorcycle tires (casings and tubes)	148	737,000
Bicycle tires (single tubes, casings and tubes)	220	669,000
All other pneumatic casings and tubes, not elsewhere specified	....	114,000
Solid tires for motor vehicles	5,198	9,890,000
All other solid tires	188	653,000
Tire sundries and repair materials	907	5,601,000
Totals	78,552	$223,615,000

Products	Number of Tons of Crude Rubber Used	Total Sales Value of Shipments of Manufactured Rubber Products
Other Rubber Products:		
Mechanical rubber goods	4,398	$26,599,000
Boots and shoes	2,870	24,879,000
Insulated wire and insulating compounds	692	7,606,000
Druggists' sundries, medical and surgical rubber goods	527	3,444,000
Waterproof cloth, clothing and rubber sheeting	620	5,837,000
Hard rubber goods	529	3,036,000
Heels and soles	1,834	7,480,000
Rubber flooring	205	862,000
Miscellaneous, not included in any of the above items	1,307	6,079,000
Totals	12,982	$85,822,000
Grand totals—all products	91,534	$309,437,000

INVENTORY OF CRUDE RUBBER IN THE UNITED STATES AND AFLOAT FOR UNITED STATES PORTS

	Long Tons			
On Hand	Plantation	Pará	All Other	Totals
Manufacturers	25,379	1,549	1,257	28,185
Importers and dealers	4,201	383	362	4,946
Totals on hand	29,580	1,932	1,619	33,131
Afloat				
Manufacturers	22,074	2,327	267	24,668
Importers and dealers	24,994	389	429	25,812
Totals afloat	47,068	2,716	696	50,480

[1] Number of rubber manufacturers that reported data was 207; crude rubber importers and dealers, 37; reclaimers (solely), 7; total daily average number of employes on basis of third week of July, 1925, was 153,855.

It is estimated that the crude rubber consumption figures are 92 per cent of the total, and the crude rubber inventory 95 per cent of the total for the entire industry.

What the Rubber Chemists Are Doing

Measurement of Crude Rubber Consistency[1]

THE two most important properties of crude rubber are its ability to give a satisfactory cured product and its workability in the factory operations. The workability of rubber is recognized as related to its plasticity, but the evaluation of true plasticity of rubber is so involved with theoretical considerations that it seems hopeless at this time to attempt to develop any simple test making use of plasticity factors which can be put to direct practical use. A study of true plasticity values of rubber must be considered a research problem of great importance but one that will take time to work out and on which it is beyond the scope of this committee to offer recommendations. The committee does wish, however, to start more or less standardized work in determining some factor of crude rubber that will be a measure of its workability. Such a test must be simple to run, it must truly represent the quality of the rubber being tested, and it must have a fair degree of accuracy.

There are three methods by which this property might be determined. The first is by measuring the viscosity of rubber solutions. This is rather a long procedure and demands accurate control of operations. Second, there is a penetration method by which a weighted plunger is allowed to penetrate a block of rubber. This might be developed into a practical method, but at present seems less desirable than the last method. The third method is the use of the Williams plasticity press. Since its introduction about a year ago this press has become of quite general use in the industry, its operation has become generally known, and in general it seems to offer the most satisfactory means of measuring this workability, or consistency factor, of crude rubber.

With the three essentials in mind—that it must be simple to run, it must represent the rubber being tested, and it must be accurate—the following is offered as a start towards a standard test of consistency with the hope that after a trial the test as recommended, or some modification of it, or possibly some other better test, may be generally adopted by the industry.

Apparatus

The press as described by Williams is used.[2] A weight of 5 kg. is placed in the upper plate and the entire press is placed in a controlled oven at 100 degrees C.

Sampling

The 2-cc. block of rubber as recommended by Williams is used. For milled rubber these can be cut out direct from a slab. In this case, however, we are dealing with unmilled crude rubber often in loose, uneven sheets full of holes, and it is, therefore, necessary to prepare the sample in such a way as to secure a compact solid block for the test, which should, moreover, be a representative sample of the bale or lot of rubber being tested. This latter point means a blending of sections from different points of the bale or lot. Any milling of the rubber greatly affects the consistency, and as conditions of milling are very hard to standardize it is extremely difficult to get check results if the sample is milled enough to sheet out. The following, however, has been found to give satisfactory results.

Procedure

A 200-gram sample of rubber, including small pieces from different portions of the bale or lot, is cut up into pieces not over 13 mm. (0.5 inch) in diameter. These small pieces are then put through the rolls of a small mill eight times, doubling over the sheet twice each time and not allowing the sheet to cling to the rolls. The rolls are kept hot and the opening between them is kept at 2 to 3 mm. The more or less blended mass of rubber is then pressed out between holland to a thickness of 6 mm. (0.25 inch) under hydraulic pressure in an ordinary platen press, the platens being kept at 100 degrees C. for one hour.

The platen plates are kept apart by two bars of 6-mm. (0.25-inch) iron, thus allowing the rubber between them to flow freely in at least two directions. This gives a homogeneous sheet, practically free from air bubbles, which can be plied up to the required thickness. Although values secured from these samples are undoubtedly somewhat low due to the slight amount of work done on the rubber, this work has been reduced to the minimum consistent with a thorough blending of the sample. The pressing out at 100 degrees C. has been found to affect the readings but very slightly.

Evaluation of Results

The Williams formula, YX^n-K, is disregarded as an unnecessary complication for this purpose. Instead, the thickness of the test piece in millimeters after 5 minutes' pressing is taken as a measurement of consistency. The figures thus obtained are called flow numbers (F.N.). As crude rubber is a poor conductor of heat a certain time must be allowed for the rubber sample to come up to a uniform temperature. The necessary preheating period has been found to vary somewhat with different rubbers, but 20 minutes appears to be a safe period.

It was not found satisfactory merely to set the test pieces in the oven at 100 degrees C. during the warming-up period, as irregular results were then secured. The test piece is placed in the press with the plates held apart by a small block of steel 13 mm. (0.5 inch) on a side, so that the upper plate but lightly touches the sample during the 20 minutes' warming-up period, and a reading is then taken 5 minutes after the steel block is withdrawn which lets the weight fall on the sample. Readings thus obtained can usually be checked with a variation of less than —0.05 mm. for samples cut from the same slab of rubber, and less than —0.10 mm. for samples of the same original rubber put through entire process of preparation.

De Vries Method

De Vries has recently recommended a method for obtaining the consistency of crude rubber that involves no milling or preparation of the sample. He cuts a thin strip from the bale of rubber, warms it slightly, and then rolls it in his fingers to a ball which he cuts with scissors to a volume of 0.4 cc. This ball is put in the Williams press in the usual way and after 30 minutes he reads the thickness of the rubber sample in millimeters.

This method is simple to run and involves no working of the rubber. It does, however, give a figure that represents only a very small piece of the rubber. The variation between two different rubbers is not great because of the smallness of the readings and the figures thus obtained cannot be correlated with readings for milled samples of rubber or mixed rubber stocks, which are generally obtained from 2-cc. samples.

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[1] Tentative method proposed by the Crude Rubber Committee of the Division of Rubber Chemistry at the 69th meeting of the American Chemical Society, Baltimore, Maryland, April 6 to 10, 1925. This committee comprised D. F. Cranor, chairman; C. W. Sandersen, E. A. Vanvalkenburgh, R. P. Rose, W. L. Sturtevant.

[2] *The India Rubber World*, May 1, 1924, 516.

Relation Between Dye Adsorption of Clays and Their Behavior in Rubber Compounds[1]

By H. R. Thies

The rapidly increasing popularity of clay as a rubber compounding ingredient lends interest to this investigation and the author's dye adsorption method for distinguishing good from poor rubber clays, as given in the following abridgment:

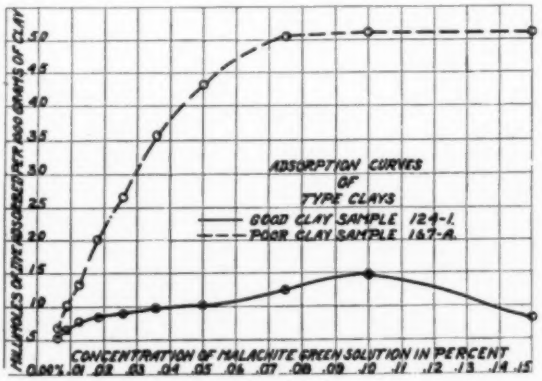
In testing clays for use in rubber compounding a remarkable variation was found both in the way in which they affected the cure of a base compound and in the maximum tensile strength obtainable by their use. In fact some of the clays tested were absolutely unusable in general rubber compounds. This was illustrated when a good clay and a poor clay in rubber were compounded and cured in the base stock known as the first trial formula, everything being the same except clay.

FIRST TRIAL FORMULA

	Per Cent by Weight	Volumes Pigment Per 100 Volumes Rubber
Rubber	63.496	100.000
Diphenylguanidine	0.504	0.446
Sulphur	2.5	1.83
Magnesium oxide	2.0	0.966
Zinc oxide	5.5	1.464
Clay	26.0	14.64
	100.000	119.346

TABLE I—TENSILE STRENGTHS OF GOOD AND POOR CLAYS

Minutes Cured at 60 Lbs.	Good Clay Lbs./Sq. In.	Poor Clay Lbs./Sq. In.
7	2,080	600
10	2,500	760
15	2,750	850
20	2,750	900
25	2,620	870
30	2,700	920
40	2,580	1,480



Graph of Adsorption Curves

With information on the adsorption power of clays and knowing the difference in their behavior in rubber, a study was made of the relation of these two qualities as applied to rubber compounds.

After preliminary experimentation, some good curing clay and some poor curing clay were shaken in a 0.1 per cent malachite green solution, also in 0.1 per cent solution of methyl violet, as follows: A 2-gram sample of clay was weighed into a 25-mm. test tube and suspended in 50 cc. of the dye solution. This suspension was thoroughly shaken and allowed to settle for 1 hour, after which samples of the clear, colored liquid were drawn off and compared in a Duboscq colorimeter with an accurately diluted standard for dye content. This method was found very useful in all subsequent investigations and, using malachite green, was finally adopted as a standard procedure.

[1]Presented before the Division of Rubber Chemistry at the 69th meeting of the American Chemical Society, Baltimore, Maryland, April 6-10, 1925.

The 2-gram sample of clay with 50 cc. of 0.1 per cent malachite green solution was selected as the standard for testing clays chiefly because poor curing clay gave almost 100 per cent adsorption which was quickly visible, while the good clay gave only 54 per cent adsorption and left the dye solution opaque.

The dye adsorption of such samples of the two kinds of clay as were at hand was tested and cured in a typical factory compound, in an attempt to establish the relationship of dye adsorption to cure in a rubber compound. The second trial formula was used in these experiments.

SECOND TRIAL FORMULA

	Per Cent by Weight	Volumes Pigment Per 100 Volumes Rubber
Rubber	48.375	100.0
Diphenylguanidine	0.625	0.72
Sulphur	2.0	1.9
Lithopone	17.0	6.84
Zinc oxide	11.0	3.81
Clay	21.0	15.35
	100.000	128.62

Results of the tests are shown in the following table:

TABLE II—VARIATIONS IN CURE AND DYE ADSORPTION OF DIFFERENT CLAYS

Sample		Time of Cure Minutes at 145° C.	Max. Tensile Strength Lbs./Sq. In.	Dye Adsorbed/Gram Clay Mg.	Dye Removed from Soln. Per Cent
Virginia clay		20	2,380	14.30	56.2
Pennsylvania clay		20	2,480	10.00	40.14
Georgia clay	1	50	1,520	24.85	99.2
	2	20	2,420	11.90	47.6
	3	40	1,250	24.90	99.5
	4	20	2,000	22.45	89.7
	5	20	2,000	21.25	89.9

The extent to which adsorption by a clay renders the clay detrimental for general rubber work seems to be measurable by a dye test: and in this dye test a clay adsorbing 90 per cent or more of the dye has too great an adsorption power to be good for all rubber usage. However, it has equally well been shown that there may be a wide variation in the adsorption power below 90 per cent without affecting the tensile strength or cure of the base compound. In fact, there is such a variation in clays obtained from the same mine although these clays show the same curing ability.

Stretching Experiments with Soft Vulcanized Rubber at the Temperature of Liquid Air[2]

The relative strengths of rubber under strain and in a normal condition were determined by M. Polanyi and A. Schob at a temperature low enough to maintain it in a state of strain without outside agency. To this end samples of soft cured rubber were cooled to —190 degrees C., both in the normal condition and while under elongation of 400 per cent.

They were then broken at this temperature and the ultimate elongation and tensile strength determined. The results show that, calculated on the cross-section at rupture, rubber under strain has a much higher tensile strength than in the normal condition. The samples in the latter condition ruptured at —190 degrees without appreciable elongation. On the other hand, though samples subjected to a preliminary elongation of 400 per cent at room temperature underwent no change at —190 degrees under a stress equal to that of the breaking stress of the unstrained samples, they elongated an additional 400 per cent before rupture, under, however, relatively little further tension. Calculated on the cross-section at rupture the strength increased nine-fold over that of the samples not stressed. Samples were also stretched 400 per cent at room temperature, cooled to —190 degrees, stressed to about half the tensile strength under these conditions, released, warmed to room temperature, allowed to recover, again cooled to —190 degrees and broken at this temperature. No elongation occurred up to the breaking point and the tensile strength was approximately the same as that of the samples which had not been stretched at all. From

[2] *Mittheilungen aus dem Materials prüfungsamt*, 42, 22-4 (1924).

a thermodynamic standpoint the experiments indicate a reversible change in tensile strength in that such a reversible change can be brought about by chilling under tension and warming again after releasing the stress.

Effect of Humidity in Rubber Testing

By R. B. Stringfield[1]

The effect of humidity on the physical testing of rubber compounds is at times very large, and in view of the interest in accurate physical testing the results of the author's investigations as summarized in his paper have much interest and value.

Summary

Differences in the relative humidity of the air to which rubber test sheets are exposed greatly influence the physical properties of the cured sheets. The effect on the slope of pure gum stocks (slope taken as the difference between the load per square centimeter at 500 per cent and at 700 per cent elongation) may be as great as 70 per cent and is often as large as 10 to 20 per cent. Loaded stocks exhibit smaller effects, the variation probably being proportional to the rubber content for stocks of the same type of acceleration.

Humidity affects a stock both before and after cure. With stocks accelerated with diphenyl guanidine or triphenyl guanidine, the higher the humidity to which they are exposed before cure, the lower the modulus and slope of the cured stock. With all other stocks so far tested, which includes stocks accelerated with hexamethylene tetramine, mercapto benzothiazole, and litharge, the higher the humidity before cure, the higher the modulus and slope of the cured stock. With all stocks, the higher the humidity to which they are exposed after cure, the lower the modulus and slope. The effect is reversible after cure and with difficulty before cure; that is, a sheet exposed to dry air and then to wet air will exhibit the characteristics of high humidity, and vice versa. Exposure to the same humidity at a higher temperature increases the effect slightly in the direction of increasing humidity. The effect is a physical and not a chemical one, combined sulphurs on sheets of the same stock of widely differing physical properties being identical.

Ordinary laboratory humidities usually fall between 40 and 60 per cent. Within this range the differences at equilibrium are comparatively small, 5 to 10 per cent, and greater variations come from lack of uniform conditioning of the sheets. The actual moisture variations in the sheets are small, and occur over a period of hours and days rather than minutes. Uniform exposure of sheets on trays for 24 hours before cure and 24 hours after cure eliminates the major portion of the variation.

[1] Presented before the Division of Rubber Chemistry at meeting of the American Chemical Society, Baltimore, Maryland, April 6-10, 1925.

Chemical Patents

The United States

PRODUCT SEALING LIQUID. Eugène Jules Houdry, assignor to J. Houdry & Fils, both of Paris, France. United States patent No. 1,556,834.

SEALING LIQUID FOR COMPRESSED AIR CONTAINERS. Samuel Freedman, Philadelphia, Pennsylvania. United States patent No. 1,558,008.

ANTI-ADHESIVE FOR MOLDING. A metallic soap dusting powder.—Harry M. Weber, assignor to Ellis-Foster Co., both of Montclair, New Jersey. United States patent No. 1,558,440.

FURFURAL PRODUCT AND PROCESS. Carleton Ellis, assignor to Ellis-Foster Co., both of Montclair, New Jersey. United States patent No. 1,558,442.

PROCESS OF COMPOUNDING RUBBER. Process of preparing compounding ingredients by surrounding their particles in a thin coating of rubber before adding them to the main body of rubber.—C. C. Loomis, Yonkers, and H. E. Stump, Brooklyn, assignors by mesne assignments, to The Hevea Corporation, all of New York. United States patent No. 1,558,688.

RUBBER COMPOUND AND PROCESS. Milling rubber with the addition of latex to facilitate the milling.—E. A. G. Meyer, assignor to Morgan & Wright, both of Detroit, Michigan. United States patent No. 1,558,701.

ACCELERATOR OF VULCANIZATION AND PRODUCT. Vulcanizing rubber in the presence of thiuram-disulphide.—S. B. Molony, Wellesley Hills, Massachusetts, assignor by mesne assignments to R. T. Vanderbilt Co., New York, N. Y. United States patent No. 1,558,707.

ACCELERATOR OF VULCANIZATION AND PRODUCT. The use of tetra-tolyl-tricarbo-di-imide.—George H. Stevens, Newark, New Jersey. United States patents Nos. 1,559,196; 1,559,197, and 1,559,198.

MOLD COATING COMPOUND. Dilute aqueous solution of sodium sulphonate.—Robert L. Sibley, Roselle Park, New Jersey, assignor to Standard Development Co., Delaware. United States patent No. 1,559,289.

DYED RUBBER PRODUCT. Rubber in sheet form is dyed with a solution of coloring matter capable of penetrating it throughout, the raw rubber being treated with sulphur and the resulting product being vulcanized with actinic rays.—D. J. Meyernigh and P. C. Wijnand, Amsterdam, Netherlands. United States patent No. 1,559,343.

TREATING RUBBER. Process and products consisting of treating rubber with a halide-free reaction product of a sulphur halide and an amine and vulcanizing the rubber.—Theodore Whittelsey, Upper Montclair, and Charles E. Bradley, Monclair, New Jersey, assignors to The Naugatuck Chemical Co., Naugatuck, Connecticut. United States patent No. 1,559,393.

COMPOSITION. Mixture of rubber, vulcanizing agent and aldehyde condensation product with a substituted thiourea and vulcanizing the mix.—H. E. Winkelmann, Akron, and H. L. Trumbull, Hudson, Ohio, assignors to The B. F. Goodrich Co., New York, N. Y. United States patent No. 1,559,925.

COMPOSITION. Process of making a rubber composition comprising subjecting an inorganic solid to a deflocculating operation and recovering the product in dry condition; mixing it with a rubber solution; precipitating the rubber in presence of the deflocculated solid by means of an organic liquid having an action similar to acetone; and separating the rubber from the liquid components.—George W. Acheson, Newark, New Jersey. United States patent No. 1,560,132.

TREATING RUBBER. Method comprising introducing a vulcanization accelerator into rubber in a number of separate parts by means of a carrying agent.—C. M. Carson, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio. United States patent No. 1,560,465.

TREATING RUBBER. The process of treating rubber which comprises introducing unactivated carbon at least partially saturated with a rubber treating gas.—Ellwood B. Spear, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio. United States patent No. 1,560,488.

The Dominion of Canada

RUBBER COMPOSITION. A composition comprising caoutchouc latex, casein, a silicate and a filling material. Also one comprising caoutchouc latex, casein, a carbohydrate and filling material.—The United Products Corporation of America, Philadelphia, Pennsylvania, assignee of Arthur Biddle, Trenton, New Jersey. Canadian patents Nos. 254,659 and 254,660.

ACCELERATOR. Vulcanization of rubber by heating it with a vulcanizing agent with a di-substituted guanidine comprising unlike aryl radicals in its respective amino groups, namely phenyl-ortho-tolylguanidine.—Albert C. Burrage, assignee of the Portsmouth Dye & Chemical Co., both of Boston, Massachusetts, assignee of Ralf V. Heuser, Elizabeth, New Jersey. Canadian patent No. 255,036.

VULCANIZATION ACCELERATOR. A sulphur nitrogen accelerator produced under reacting conditions of sulphur and methylene aniline in the presence of an aromatic amine.—The Goodyear Tire & Rubber Co., assignee of C. W. Bedford, both of Akron, Ohio. Canadian patent No. 255,149.

VULCANIZED RUBBER. Vulcanization with zinc persulphide.—The Goodyear Tire & Rubber Co., assignee of C. W. Bedford, both of Akron, Ohio. Canadian patent No. 255,150.

ACCELERATOR OF VULCANIZATION. The sulphur substitution product formed by the reaction of sulphur and a nitrogen accelerator.—The Goodyear Tire & Rubber Co., assignee of C. W. Bedford, both of Akron, Ohio. Canadian patent No. 255,151.

METHOD OF VULCANIZING RUBBER. Heating a mixture of caoutchouc with a vulcanizing agent and an amido-thiophenol or its metallic salt.—The Goodyear Tire & Rubber Co., assignee of C. M. Carson, both of Akron, Ohio. Canadian patent No. 255,152.

METHOD OF VULCANIZING RUBBER. Heating a mixture of caoutchouc, vulcanizing agent and a compound of pentacyclic formation.—The Goodyear Tire & Rubber Co., assignee of L. B. Sebrell, both of Akron, Ohio. Canadian patent No. 255,153.

The United Kingdom

FLOORING. Rubber sheets or tiles vulcanized to a layer of rigid material such as asbestos, cement, wood, stone and metal by which it can be securely fixed to the floor.—V. Lefebure, 9 Glenlock Road, Hampstead, London. British patent No. 237,981.

POROUS RUBBER. Spongy rubber for battery diaphragms, filters, etc., is produced by coagulating latex or suitably treated rubber solutions to form a jelly-like mass with pores approaching colloidal dimensions.—H. Beckmann, 26, Albertinenstrasse, Zehlendorf, Berlin. British patent No. 238,870.*

PROOFING MATERIAL. Silk or other fabrics are rendered impervious to moisture by treatment with a mixture of rubber and alcohol.—C. J. Gibson, 19 Queen Victoria street, London. British patent No. 239,048.

VULCANIZING RUBBER. Zinc hydroxide or an oxyhydrate of zinc is used in conjunction with sulphur for vulcanizing rubber.—Chemische Fabrik Kalk Ges. and H. Oehme, Kalker Haupt strasse, Cologne, Germany. British patent No. 239,173.*

STUFFING FOR UPHOLSTERY. A mixture of crude rubber and linseed is heated until it forms small flocky elastic lumps which reduced to powder constitute the stuffing material.—H. Herr, 22 Blumenstrasse, Munich, Germany. British patent No. 239,543.*

*Not yet accepted.

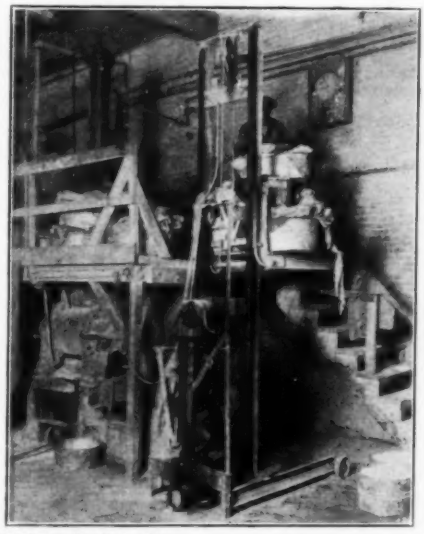
Germany

420,940 (August 1, 1923). Making vulcanized rubber masses. Vultex Limited, St. Helier, Channel Isle; represented by: L. M. Wohlgemuth, Berlin S. W. 61.

New Machines and Appliances

Portable Elevator and Jack Lift

IN every rubber manufactory stocks in process require to be moved about. Even in small factories, particularly where an enclosed mixer is used or where sheet rubber is served to cutting and curing presses, the burden of lifting or elevating such stocks is heavy and costly.



Stedman Products Co.

Fig. 1. Electric Portable Stacker Handling Unmixed Rubber Batches

In the illustrations a most effective solution of this problem is pictured as it occurs in a rubber flooring factory. The device used for this purpose is a portable jack-lift and elevator. In Figure 1, it stands in an angle of the feed platform of an enclosed mixer and is used to raise to that level a number of unmixed batches in pans. This elevator is equally well adapted also for such operations as piling and unpiling bales, barrels, boxes, etc.

For moving about slabs of compounded stocks on platforms

Stedman Products Co.

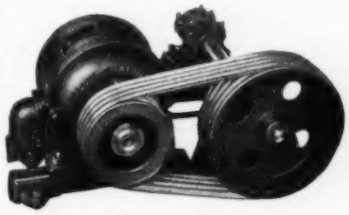
Fig. 2. Jack-Lift Moving Stock on Platform

for storage or to and from cutting and press rooms, a form of jack-lift truck is pictured in Figure 2. Here the operator is placing a load of sheet rubber next to a cutting press. The load of cut sheets shown on the right will then be removed and an empty platform put in its place by the jack-lift. The operation of raising the loaded platform clear of the floor is effected with moderate pressure by foot power on a treadle actuating a system of levers.

The construction of the elevator marks an advance in its field because it is the first portable elevator to be made on the worm drive principle. The worm runs in an oil bath and there are no worm gears. The operation, both up and down, is through a controller. A high-torque elevator type motor of 2½ horsepower is used, operating from a power line. The stacker will lift a 1,000-pound load at the rate of 40 feet per minute.—Lewis-Shepard Co., Watertown, Massachusetts.

Elastic Belt Drive

An important development in power transmission is represented by the device here illustrated and known as the "Texrope" drive. It consists of two grooved sheaves and a number of elastic endless V belts. The sheaves are set just far enough apart so that the belts fit the grooves with neither tension nor slack. This avoids slack or lost motion in the drive. The V construction of the belts prevents slippage as the harder the pull the tighter the belts grip the grooves. Since they are elastic and stretchable they cannot jerk in starting, speeding up or running. They cannot transmit vibrations but act as cushions between the driving and the driven machines. Thus smoothness of transmission is delivered by this drive.



Texrope Drive

Texrope drives from one-half horse-power to 250 horse-power, with speed ratios up to 7 to 1 and belt speeds from 800 to 6,000 feet, are in service. They have already been applied successfully in the rubber industry as well as in nearly all others.—Allis-Chalmers Manufacturing Co., Milwaukee, Wisconsin.

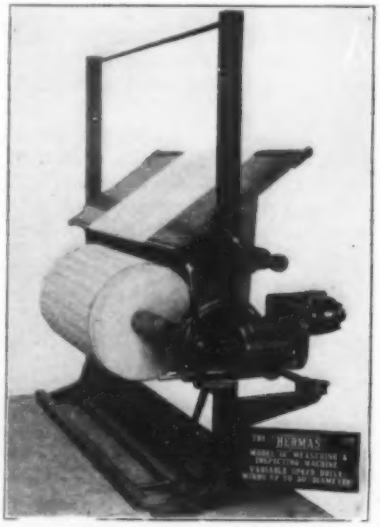
Forged Steel Tire Molds

Marked economy is being effected by many tire companies by the substitution of forged steel tire molds for those of cast iron commonly used. The initial cost of forged steel molds is greater than that of cast iron molds, but this item is far outweighed by the advantages they offer. A vulcanizer holding 20 cast iron molds for 5.25 inch balloon tires will hold 29 steel molds for the same size. Since the time of cure is the same in each instance the steel molds give an increased production of 20 per cent saving in vulcanizing cost from 2½ to 4½ cents per tire, according to size, which totals a large annual saving in case of a large daily tire output.

Another important consideration in favor of the forged steel mold is the fact that they are not subject to breakage as cast iron molds are, hence production is never halted by that difficulty. A cast iron mold does not average over 3 years of service before it is outworn, while forged steel molds endure in service until retired by obsolescence. The fact that forged steel molds are relatively light in weight makes the work of handling them by conveyor or equipment much less severe than in the case of cast iron molds.—Southwark Foundry & Machine Co., Philadelphia, Pennsylvania.

Fabric Inspecting and Measuring Machine

In the manufacture of tires, rubber footwear, proofing and other lines where well-woven fabrics are used it is desirable to install some means for measuring and inspecting the goods. A machine designed for this purpose is here pictured. It enables the operator to examine the entire piece while obtaining accurate measurement under natural tension. It is instantly adjustable to any angle or light required for different qualities, eliminates creases, rolls either on paper tubes, tapered wood, or collapsible roller which is easily withdrawn from the cloth.

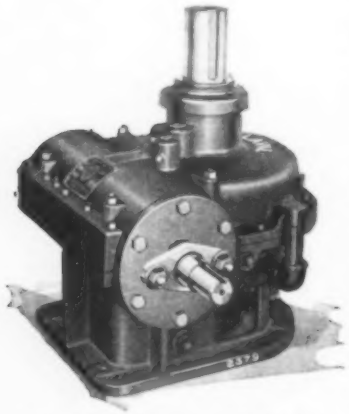


Variable Speed Inspecting Machine

The machine is ball bearing throughout, is motor driven from a light socket and only needs to be uncrated when it is ready to run. Being built on the unit principle, these machines can be arranged to meet any requirement. It has variable speed drive to wind rolls up to 30 inches diameter.—The Hermas Machine Co., Hawthorne, New Jersey.

Reduction Gear for Vertical Shaft Drive

Worm reduction gears for power lines have the valuable feature that the driven shaft is at right angles to the driving shaft. Where the driven shaft is horizontal this permits the motor to be located alongside the machine instead of in the aisle space. For vertical shaft drives it does away with bevel gears and vertical belts which are always more or less troublesome.



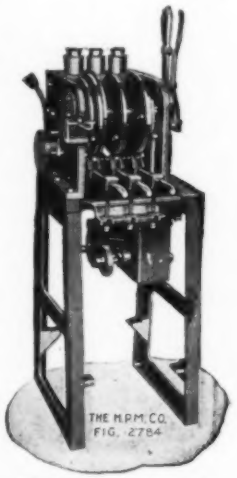
De Laval Vertical Shaft Drive

The illustration shows a worm reduction gear for vertical shaft drive recently developed. The gear casing supports the worm bearings and also the lower bearing of the driven shaft, while the upper shaft bearing is held by the casing cover. The oil is carried at such a level that the worm and gear wheel dip into it, thus insuring lubrication. The lower wheel shaft bearing is always immersed in oil and has spiral grooves to insure oil circulation. To provide oil for the upper wheel bearing and thrust plate, a small reciprocating oil pump is incorporated in the casing cover. Suitable filling and drainage openings, together with a try-cock, provide for control of the oil level. With this type of speed reducer, inspection of the oil level at long intervals is about the only attention required.

For larger size reductions, where the worms run at fairly high speeds, a positive pressure oiling system is used to feed oil to all the bearings and to the worm threads and gear teeth at the contact points, thus avoiding fluid friction.—De Laval Steam Turbine Co., Trenton, New Jersey.

Automatic Control for Vulcanizing Presses

In molding hard rubber articles and those of bakelite or other plastic materials the press-man under ordinary conditions of working must personally perform a number of routine operations during the molding or vulcanization period. These operations are all essential to the production of perfect product although most of them are requirements of hand operated equipment.



H.P.M. Press Control

Automatic control of press molding has been secured for every type of press by the mechanism here illustrated. This machine will close the press, hold it closed under pressure a definite length of time and then open it automatically. It is a motor driven control consisting primarily of a series of valves, in one casting, with controlling levers. Mechanical means are provided to actuate these levers in the proper sequence, thus holding their respective valves open for predetermined periods. The driving and timing mechanism which actuates the levers may be described as a series of cams mounted on a driving shaft, operated by a worm shaft geared to the motor. The cams are bolted to the disks and shaped to hold their respective valves open for such part of a complete cycle as pressure is required. The relation of one cam to another may be quickly changed by turning them around the disks in slots provided for the purpose. A complete revolution of the driving shaft accompanies a complete press cycle—from the closing to the opening of the press. The duration of the complete cycle is readily altered, so that the automatic control can be used for various classes of work. The control mechanism starts when the operator presses a small lever, and stops automatically at the conclusion of the cycle. The motor runs during the cycle only. These controls are built in sizes from two to nine units for a wide range of services, and can be readily adapted to any make of press.—The Hydraulic Press Manufacturing Co., Mount Gilead, Ohio.

Precision Dial Gage

To meet the continually increasing demand for finer reading instruments for measuring thickness of thin sheets a new model of dial indicator has been developed. This is the first indicator ever manufactured in which one turn of the index hand represents only 0.010 inch of travel of the spindle. The graduations on the dial indicate the measure by single thousandths of an inch, plus in one direction and minus in the opposite one.—Federal Products Corporation, Providence, Rhode Island.

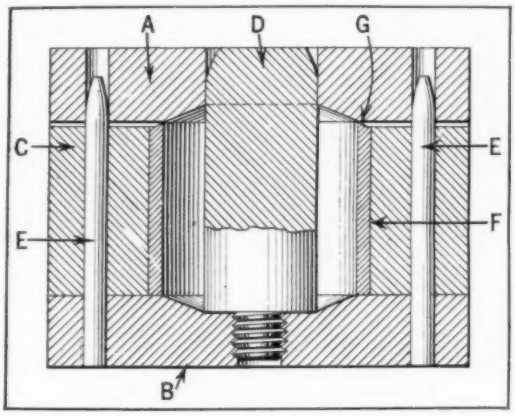
Berstorff Rubber Calenders

The Hermann Berstorff Machine-Building Co., Hannover, Germany, specializes in the construction of light and heavy calender equipment for all branches of the rubber industry. These machines include the usual three-roll friction calenders, heavy four-roll sheeting calenders in all widths, five-roll calenders for soling, etc. Among the special types built by this company should be mentioned the zinc rolling calender for hard rubber manufacturers and one with large bottom roll adapted for running the famous "It" sheet packing.

Improved Mold for Beveled Rings

An improved mold for making bevel edge sleeves on gaskets of the type used on slush pumps in oil well drilling has recently been perfected. The design of the mold is shown in the illustration. Its special feature is the automatic trimming device which removes the overflow rubber from the edge of the gasket during the operation of molding.

The mold comprises three parts, the upper and lower parts A and B contain bevel cavities, forming the ends of the sleeve, and a middle or ring section C to form the walls. The pin D forms the hole through the sleeve. The three parts of the mold are united and held together by the usual dowel pins E. The automatic trimming part consists of a polished steel sleeve F which is polished smooth inside and fitted tightly into the body or middle section of the mold. The sleeve F has a hardened knife edge G adapted to cut against the soft steel upper section A of the mold, and thus severing the overflow of rubber as it enters the parting or joint between the middle and top pieces of the mold. Since



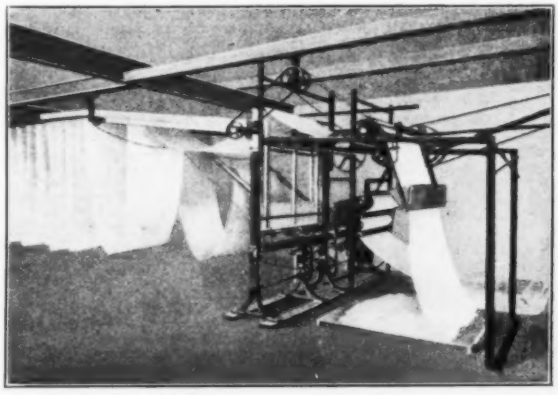
Self-Trimming Mold

the top piece of the mold is soft steel the cutting edge G is not injured in the press. A shoulder at G serves to prevent the cutting edge from pressing too deeply into the top plate A. Molds of this construction remain in perfect working condition indefinitely, turning out beveled end rings that do not require any finishing operation such as trimming or grinding.—United States Tool & Machine Works, 27 Thames street, New York, N. Y.

Festooning Machine

The illustration represents a festooning machine of Continental design and manufacture. It is a mechanical drying apparatus, designed for drying all kinds of materials, and built in two sizes, the smaller for rooms up to 16 feet 8 inches long and the larger for rooms up to 26 feet 8 inches.

The machine festoons the materials to be dried, which are then carried through the chamber supported on the rods over which



German Drying Apparatus

they are festooned. At the end of the travel the rods are automatically dropped into a rod collector and return to the starting point, while the dry fabric is received folded on trucks for removal from the heater.

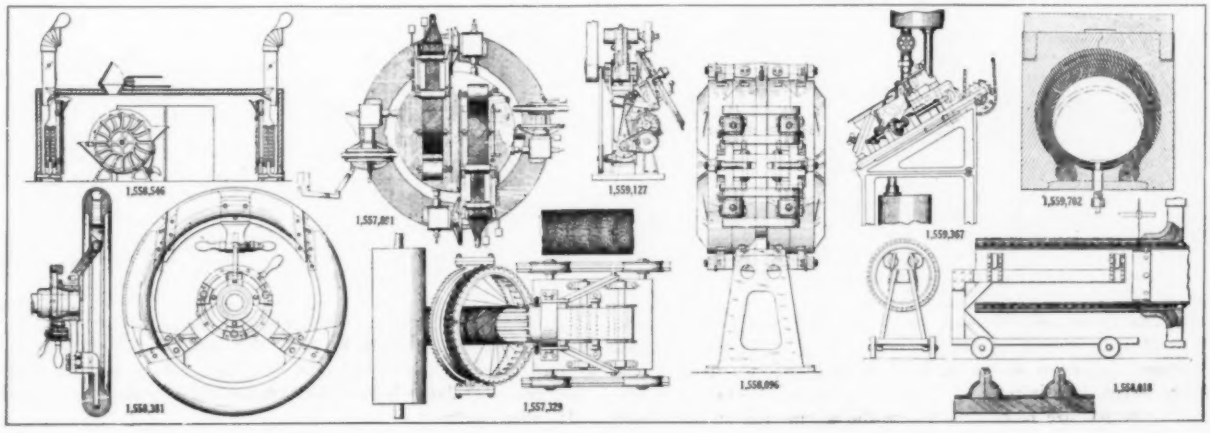
This apparatus is used by a considerable number of German manufacturers of insulating materials and rubber cloth.—Julius Fischer, Nordhausen, Saxony, Germany.

Machinery Patents

The United States

1,557,329 CORD TIRE FABRIC MAKING. A new form of cord tire fabric is constructed by a special mechanism by which the cords of one set or layer in a cord fabric tire run from one side of the casing, in practically a semi-circular, semi-oval or semi-spiral form over the crown of the casing to its opposite side where the end of each cord or thread is set in the edge or bead opposite to the point of beginning. The next succeeding layer of cords is laid in opposite direction and forms loops over the cords of the preceding layer.—R. B. Respess, New York, assignor by mesne assignments, to Respro, Incorporated, Cranston, Rhode Island.

1,557,891 TIRE BUILDING MACHINE. By this mechanism several tire casings are built at the same time, the different operations being carried out at different stations, each of which operations may be the work of a



single operator. The machine comprises a stationary framework on which is mounted the fabric carrying and stretching mechanism. The latter cooperates with the cores as they are placed in position by the movement of a turntable on which are mounted a sufficient number of core carrying chucks to enable the several steps of the building to be carried on simultaneously.—W. C. Stevens, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.

1,558,018 CUSHION TIRE MACHINE. This mechanism is designed to apply to a series of steel tire rims the flow of rubber from a group of rubber forcing machines. The tubing die has provisions for discharging the rubber as a seamless tube, in the inner surface of which the tire rims become embedded. The die also has pins to form holes in the extruded rubber parallel to the axis of the rubber tube expressed thus forming cross-way holes in the tire blank when it is cut from the mass.—H. M. Lambert, Portland, Oregon, assignor to Lambert Tire & Rubber Co., Akron, Ohio.

1,558,096 TIRE VULCANIZER. This is of the hinged variety supported vertically so that it can open easily for vulcanizing pneumatic tires. For convenience the apparatus is made in two parts or a duplex type for the accommodation of one tire on each side. The complete mold units are alike on either side of the central web being arranged thus to save floor space and each mold comprises a chambered or steam jacketed casting hinged to a corresponding jacketed half stationary on the web.—O. T. Kuhlke, assignor to The Kuhlke Machine Co., Akron, Ohio.

1,558,381 TIRE CORE. The core is collapsible comprising a hub supporting a rigid core segment to each end of which are hinged other segments held in position by a key segment. The full circle of segments is held in position for tire building by a bifurcated strut pivotally connected to the hub.—H. F. Maranville, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,558,546 APPARATUS FOR TREATING RECLAIMED RUBBER. This apparatus removes moisture from reclaimed rubber by the use of humid air and temperature at the same time keeping the pieces of reclaimed rubber from sticking together by stirring and dropping them as separate pieces through the heated humid air. The rotary stirrer is placed in a dry kiln with heating radiators and ventilating intakes at each end opening to the outer air. The wet reclaimed rubber is fed by conveyor through a hopper opening in the roof of the kiln.—Harry Hunter, deceased, by P. R. McCampbell, administrator, and O. M. Ragsdale, both of Indianapolis, Indiana, assignors by mesne assignments to Carrier Engineering Corporation, Newark, New Jersey.

1,559,127 BEAD-CORE BUFFING MACHINE. A power driven machine for buffing endless bead-core rings for tires. The bead ring is supported at points located at opposite sides of two buffing brushes, the arrangement being such that when the brush is swung downward into contact with the ring the latter is deflected from its true circle against the brushes and is abraded from opposite sides.—J. E. Perrault and M. S. Cate, assignors to Hood Rubber Co., all of Watertown, Massachusetts.

1,559,367 CEMENTING MACHINE. This is adapted especially for cementing the lower portions and tip of a lasted shoe upper. Rubber cement is supplied to a cement spreading cylindrical brush projecting through an inclined support or table and revolving at an angle. The lasted shoe resting on the inclined support is guided by the operator against the cement brush and is evenly coated with cement around the base of the upper adjacent to the sole.—H. R. Polleys, New Haven, Connecticut, assignor to National India Rubber Co., Bristol, Rhode Island.

1,559,702 VULCANIZING PROCESS. A process for simultaneously vulcanizing both the tubes and casings so that the former may be utilized as air bags for applying pressure to the inside of tire casings during vulcanization. The finished tube exactly fills the cavity of the casing in which it is vulcanized. The valve stem is utilized for the introduction of the fluid pressure. The tube is mounted on a bull ring giving exact size to the base portions of the tire. The tube thus mounted is placed in the tire and both are placed in the mold cavity and cured. Inflation is made by carbon dioxide or other inert gas or gases.—Ernest Hopkinson, New York, N. Y.

1,556,969 Tire making machine. Howard I. Morris, Los Angeles, assignor to Claus Spreckels, San Diego, both in California.

1,557,882 Apparatus for gaging vehicle parts. James W. Schade, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,558,019 Manufacturing cushion tires. Henry M. Lambert, Portland, Oregon, assignor to Lambert Tire & Rubber Co., Akron, Ohio.

1,558,156 Fabric delivering mechanism for embossing presses. Stuart M. Ford, Bridgeport, Connecticut, assignor to Durotex Corporation, Newark, New Jersey.

1,558,271 Process and mechanism for impregnating fibrous material. Luther S. Newell, assignor to Respro, Inc., both of Cranston, Rhode Island.

1,558,341 Seam-reenforcing machine. James W. Brundage, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,558,586 Latex Sprayer. Charles E. Bradley, Montclair, New Jersey, and Joseph E. Coffin, Hempstead, New York, assignors to General Rubber Co., New York, N. Y.

1,558,593 Latex Sprayer. Joseph E. Coffin, Hempstead, assignor to General Rubber Co., New York, both in New York.

1,558,603 Collapsible core. Andrew J. Fleiter, Akron, Ohio.

1,558,792 Repair vulcanizing material and apparatus. Ralph H. Churchill, Chicago, Illinois.

1,559,072 Repair vulcanizer. David G. Chandler, Racine, Wisconsin, and Robert T. Swendsen, Indianapolis, Indiana.

1,559,588 Tire buffer. Hugo Reichel, Chicago, Illinois.

1,559,884 Molding press. Henry J. Kasch, assignor to The Kurz-Kasch Co., both of Dayton, Ohio.

1,559,972 Method and apparatus for building tire casings. Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,560,027 Tap-splitting machine. John F. Donnelly, Brockton, assignor to Panco Rubber Co., Chelsea, both in Massachusetts.

1,560,117 Molding press. Francis E. Stevenson and Thomas F. Stacy, assignors to The Hydraulic Press Manufacturing Co., all of Mount Gilead, Ohio.

The Dominion of Canada

254,520 Tire building machine. Walter H. Hermann, Lancaster, Ohio, U. S. A.

255,003 Tire boring machine. The Lambert Tire & Rubber Co., Barberton, Ohio, assignee of Henry M. Lambert, Portland, Oregon, both in U. S. A.

255,211 Cord tire making machine. The Yoder Morris Co., assignee of Howard I. Morris, both of Cleveland, Ohio, U. S. A.

The United Kingdom

238,063 Electric vulcanizers. F. B. Dehn, 53, Doughty street, London (Budd Manufacturing Co., 25th street, Philadelphia, Pennsylvania, U. S. A.)

238,178 Apparatus for making elastic tires. K. J. Thompson, 58 Helen avenue, Mansfield, Ohio, U. S. A.*

238,442 Apparatus for making insulating coverings for electric conductors. Western Electric Co., Ltd., Connaught House, Aldwych, London (Western Electric Co., Inc., 463 West street, New York, N. Y., U. S. A.).

238,881 Molding tires. R. Rondeau, Grolejac, Dordogne, France.*

Germany

419,842 (February 20, 1924). Device for indicating the escape of air from pneumatic tires. Gustav H. Schmidt, Bydgascz, Poland; represented by Dr. L. Gottscho, Berlin W. 8.

419,935 (November 29, 1922). Dipped goods apparatus. Albert Boecler, Malmö, Sweden; represented by: Dr. R. Specht, Hamburg.

420,925 (June, 1923). Apparatus for crimping thin rubber sheets. Firma Carl Plaat, Köln-Nippes.

Process Patents

The United States

1,558,496 Uniting a rubber heel and leather base. Dennis Parks, St. Louis, Missouri.

1,558,505 Producing rubber articles. Eugene J. Ray, Beverly, Massachusetts, assignor to United Shoe Machinery Corporation, Paterson, New Jersey.

1,558,706 Golf ball. Harvey F. Mitzel, Providence, Rhode Island, assignor by mesne assignments of one-half to The Golf Ball Corporation of America, Wilmington, Delaware.

1,558,904 Tire building. Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,559,142 Pneumatic tire construction. Butler Ames, Lowell, Massachusetts.

1,560,472 Ornamentation. Carlos D. Hoppes, assignor to The Faultless Rubber Co., both of Ashland, Ohio.

The Dominion of Canada

254,397 Making golf balls. The Dunlop Rubber Co., Ltd., Regent's Park, London, assignee of Albert Ernest Penfold, Birmingham, Warwick, both in England.

254,811 Treating rubber latex. The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, assignee of Ernest Hopkinson, New York, and Merwyn Clarence Teague, Elmhurst, Long Island, both in New York, U. S. A.

254,849 Method and apparatus for making hollow rubber articles. The Paramount International Rubber Co., of Canada, Limited, Montreal, Quebec, assignee of Albert H. Bates, Trustee, Cleveland Heights, Ohio, assignee of Fred Thomas Roberts, Yonkers, New York, both in U. S. A.

254,850 Making rubber footballs. The Paramount International Rubber Co. of Canada, Ltd., Montreal, Quebec, assignee of Albert H. Bates, Trustee, Cleveland Heights, Ohio, assignee of Fred Thomas Roberts, Yonkers, New York, both in U. S. A.

255,145 Making tires. The Dunlop Tire & Rubber Corporation of America, assignee of Harry Willshaw, both of Buffalo, New York, U. S. A.

The United Kingdom

238,483 Producing biased fabrics. G. M. Clark, 53, Chancery Lane, London (Brand & Orpenheimer, Inc., 233 Fourth avenue, New York, N. Y., U. S. A.).

238,588 Coating fabrics. C. E. Simpson, 7, Roby street, Piccadilly, Manchester.

238,636 Making inlaid lettering. E. B. Costendorp, Antique Corner, The Lanes, Brighton, Sussex.

238,811 Forming nonmetallic elastic bodies and cores. J. Findling, 504 West 159 street, New York, N. Y., U. S. A.

238,853 Making rubber hoops and rings. B. F. Goodrich Co., 1780 Broadway, New York, N. Y., assignee of J. R. Gammeter, North Portage Path, Akron, Ohio, both in U. S. A.*

Germany

420,993 (October 28, 1924). Disinfecting sponge rubber goods. Firma Belinde-Werke A.-G., Wandsbek.

421,141 (November 2, 1922). Making tire carcasses. The Norwalk Tire & Rubber Co., Norwalk, Connecticut; represented by: G. Benjamin and H. F. Wertheimer, Berlin S. W. 11.

*Not yet accepted.

New Goods and Specialties

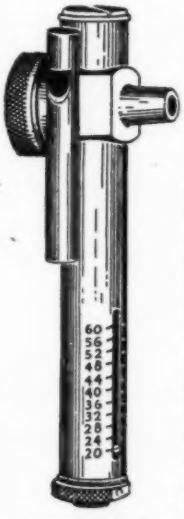
Colored Rubber Slickers

FRANKLIN RUBBER CO., 134 Federal street, Boston, Massachusetts, are the manufacturers of the collegian style of raincoat and tam o' shanter illustrated, which they put out under the trade name of "Rainbow."

These classy little sport models come in a variety of colors: lipstick red, rust, emerald, cadet, scarlet and purple, and embody both style and durability. They are made with stand-up buff colored corduroy-faced collar, throat-tab, arm ventilation and with arm scyes shoulder seams and back seam strapped. The large patch pockets are in keeping with the most approved college styles, which are by far the best sellers today in waterproof garments.

The "Rainbow"

Automatic Tire Air Gage



The Clymer Air Gage

This gage differs materially from other types of air gages as it determines the amount of pressure as the tire is undergoing inflation instead of after the tire has been inflated. It may be carried either in the pocket or the tool kit, and when inflating is attached between the tire valve and air hose so that the air passes through the instrument as it enters the tire.

The user simply adjusts the thumb screw indicator to the amount of pressure desired in the tire, attaches the instrument by pushing on the tire valve stem, and applies hose to instrument. The hose is never removed until the proper pressure has been reached, and when this occurs the gage not only automatically shuts off the supply of air but warns the user by sounding a whistle which is part of the instrument.

It is less than four inches in length and permits access to all types of pneumatic tires, and is made in two styles, either for balloon or high pressure tires. The balloon gage takes all tire sizes that require 20 to 60 pound pressure; the high pressure, 50 to 100 pounds.—Clymer Motor Products Co., 1526 Lincoln street, Denver, Colorado.

Brushes With Rubber Bristles

The "Ruba" brush resembles its ordinary brother in shape and design, but it does far more than any bristle can ever do. It is made of finest rubber, each strand put in by hand, and will outwear any bristle. It is essentially hygienic and can easily be washed.

When used for the bath it brings a quick and generous lather, stimulates tired tissues, draws out all the dirt and gives a delightful feeling of exhilaration. As a nail brush it is superior to all ordinary brushes or pumice as it cannot scratch the nails or inflame the cuticle, yet searches out all the crevices and quickly removes all ink stains.

For children it is particularly effective on scrubby little knees, which they hate so to have cleaned "because it hurts." It carries no germs, gives no harsh feeling and is ideally suited to tender skin.

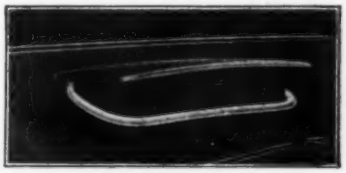
It makes shaving a pleasure as there are no bristles to come out, no lather to splash and run down the handle. A creamy lather is quickly formed over which the razor glides. It softens the stiffest beard, acts as a massage and leaves the skin soothed.

Another use it has is for shoes of suede, velvet or like fabric. It produces a sheen and luster, keeps the nap in fine condition and is a dry process.

Types of "Ruba" Brushes

"Ruba" brushes do their work gently and effectively. There being no need to brush hard, work is made lighter and more quickly done, thus ensuring longer life to the brush and to the material.—Rubber Brushes, Ltd., 125 High Holborn, London W.C.1.

Rubber Gasket for Cowl Ventilators



Protect-A-Vent

Protect-A-Vent keeps rain and dust and cold from coming through the cowl ventilators of Ford coupés and sedans, and prevents rattling of loose ventilators. It is fashioned of specially treated, pliable rubber, made to resist weather, and is black, the same color as the car finish. When the ventilator is closed it cushions itself snugly against the Protect-A-Vent; when open, Protect-A-Vent is unnoticed. It can be installed instantly without expense by simply slipping it around the flange in the cowl.—Protect-A-Vent Products Co., 408 West Ninth street, Des Moines, Iowa.

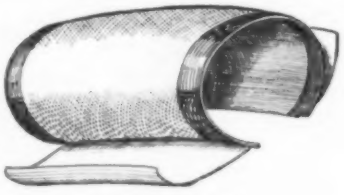
Soft Rubber Poker Chips

Something new in the line of poker chips is now being made up in soft rubber, which the manufacturers claim has the advantage over other types of chips in that it will not scratch the polish of the most highly finished table, and when soiled can easily be cleaned. This assortment comes in a leatherette covered box which is made in three colors, cerise, blue and green. The box is double-decked and contains 200 chips as follows: 75 white, 50 blue, 50 red and 25 yellow.—Eberhard Faber, 37 Greenpoint avenue, Brooklyn, New York.

Assorted Poker Chips

Blow-Out Patches

The C. O. T. balloon cord blow-out patches are made of 16-ounce tire cord said to be as good as the tire itself, and just as strong and flexible. They are all white patches with soft red rubber tips to protect the tubes, each patch shaped in individual molds to fit the tire. These are supplied in both "balloon cord" and "all-fabric," the cord patches being of 16-ounce tire cord, while the fabric patches are made of either 6-ply or 7-ply fabric, depending on the size of tire with which they are to be used.—Charles O. Tingley & Co., manufacturer, Rahway, New Jersey.

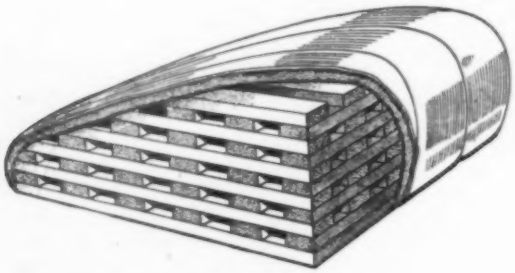


C. O. T. Patch

Sponge Rubber Upholstery

The motor enthusiast will welcome this new form of upholstery, which has almost the softness of a down cushion, and does away with the fatigue usually felt after a long journey.

Owing to its shock absorbing properties, sponge rubber is ideal for upholstery. Seats built of strips of this material, as shown in the accompanying illustration, give a riding comfort hitherto unknown, or so the manufacturers claim, as the worst irregularities in the road surface are damped out to such an extent that the shock transmitted to the chassis is hardly felt.—The International Rubber Manufacturing Co., Ltd., 7c, Lower Belgrave street, London, S. W. 1, England.



Motor Seat

Firemen's Leggings

Made of black dull finish rubber on white sheeting, these rubber leggings are extra large and are without straps at bottom or top. They are designed to fit over and fasten to service pants and can be had either wide faced or hemmed at bottom.—Chicago Rubber Clothing Co., Racine, Wisconsin.

Rubber Leggings

Improved Golf Bag

The improved Goudie lockfast golf bag, made of rubberized fabric, is guaranteed rust proof, does not get out of order and can be opened or closed in a second. It is provided with a lockfast hood and pocket which insure that the contents of the bag are not tampered with, has a 6½ inch inside ring, blocked leather bottom, broad padded shoulder strap and umbrella fittings. The illustration shows the bag with hood open and it is at this point that the patent steel insert is introduced.— James T. Goudie & Co., 49 Queen street, Glasgow, Scotland.

Goudie Lockfast Golf Bag

Rubber Mat Excluder

This easy-to-install rubber protector is simply slipped over pedals and brakes and prevents cold drafts, dirt and hot air from the motor coming through the floor. It is made of strong rubberized material that is flexible, waterproof and durable. It fits snugly, is neat in appearance, and when the floor mat is replaced only the sleeves are visible.—Durkee-Atwood Co., 40 Wilder street, Minneapolis, Minnesota.

Rie Nie Pedal Pants

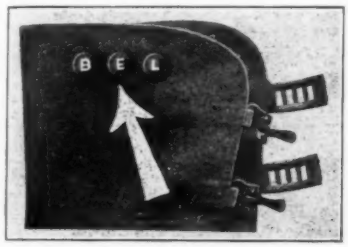
Elastic Knee Cap

Made of the best grade elastic, woven to fit perfectly, this is one of the most comfortable and efficient knee bandages on the market. It is provided with heavy, firmly sewed straight felt pads making it indispensable for all violent forms of sport, as basketball, football, soccer, etc. It provides a support to the knee and prevents injury to the knee cap, prevents sprains and strains, and quickly reduces swelling.—Bike Web Manufacturing Co., 4115 East Ravenswood avenue, Chicago, Illinois.

Padded Knee Cap

Initialed Rubbers

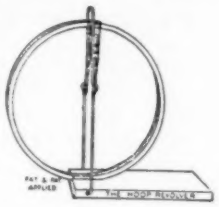
The greatest confusion is often caused at large gatherings through the inability of owners of overshoes and rubbers to identify their property. The new Society Markers do away with this uncertainty and permanently identify them by the initialed fasteners which are placed at the top of the rubber footwear. As the illustration shows these are most effective and inconspicuous, a great convenience, and in addition will, no doubt, do much to lessen the amount of thievery, another common cause of complaint.—United States Fastener Co., Boston 27, Massachusetts.



Society Markers

Elastic "Revolver"

The principle of reversible motion is well exemplified in the hoop revolver that is operated by a rubber band. The "revolver" shoots a hoop 20 to 30 feet, the hoop revolves—whence the name—and returns to the starting point. It is safe, easy to operate, and never fails to "go." Children are eager to shoot it to see how it works, and always delight in its baffling and delightful mystery.—The Hance Manufacturing Co., Westerville, Ohio.



The Hoop Revolver

Radiator Condenser Utilizes Rubber

The enemy of radiator solutions, evaporation, is defied with the Stewart-Warner radiator condenser. When the solution is heated to the boiling point, instead of overflowing it is drawn into the condenser and held in a collapsible rubber sack, on the upper end of this sack is a plate above which is a spring. When the volume of fluid increases, the spring is forced upwards to get ready for its function of returning the fluid to the radiator at the proper time. The solution shrinks to its normal volume when the engine cools off, making room for the overflow to be returned.—Stewart-Warner Speedometer Corporation, Chicago, Illinois.

Condenser With Rubber Sack

Corrugated Rubber Running Boards

Ford cars are greatly improved by the new Run-O-Boards which are made of soft corrugated rubber, vulcanized to a galvanized plate, having a sound proof back and edged with aluminum. The metal sheet is plated by placing on the back a thin layer of rubberoid roofing paper which makes an excellent cushion between the metal sheet and the metal running board, and to this plating is vulcanized a sheet of corrugated rubber.

"Run-O-Boards"

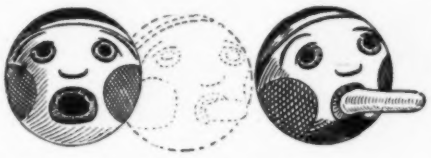
A special style is made for Chevrolets of corrugated rubber welded to galvanized sheet.—Rubber-On-Metal Welding Corporation, 50 East 42nd street, New York, N. Y.

Crêpe Rubber Strip for Mats

All good housewives love beautifully polished parquet or linoleum covered floors and in order to keep them beautiful frequently polish them with beeswax or some other floor polish. There has always been danger, however, of mats slipping at the foot of the stairs or at the front door causing many painful accidents. A sure way of preventing such mishaps is to stitch a piece of crêpe rubber on the wrong side of the mat, which will then retain a firm grip on the floor, no matter how highly polished the floor may be or however hasty the footstep.

Rubber Tongue and Eye Balls

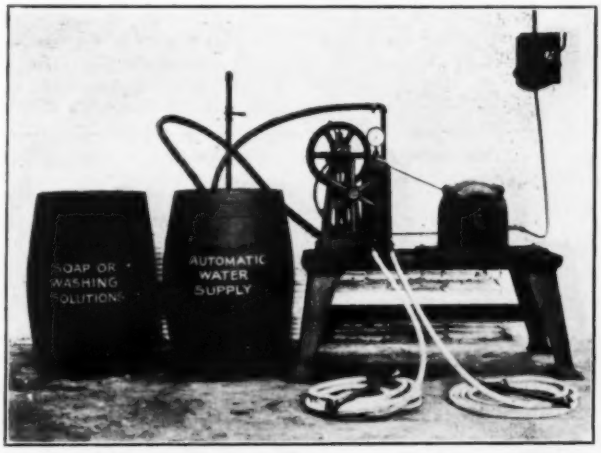
Youngsters never tire of the rubber tongue balls and this new form, as illustrated, in which the eyes as well as the tongue stick out when the ball is squeezed, is sure to give a great deal of amusement. It is made of very good quality rubber, the face being painted in most attractive colors.—Oscar Leistner, 319-325 West Randolph street, Chicago, Illinois.



Toy Ball

Auto Washer

The manufacturers of "Speed-Spra" claim that it cleans the average car in fifteen minutes. It is driven by a three horsepower electric motor or engine, and delivers, through a length of rubber hose to the "Velvet-Spra" gun operated by the washer, a broad, soft soaking spray, or a strong, driving spray for use on the under side of fenders, chassis, etc. Each outfit is equipped with two hose outlets making it possible to wash two cars at a time, or put two men at work on one car.



The "Speed-Spra" Washer

The cold water is drawn from a supply barrel into the pump, placed under pressure and forced through the rubber hose into the gun. There are no compressed air or mixing tanks, and no valves to operate. The pump itself is automatic, regulating its own pressure, and keeping the pressure constant, whether one or two leads are operated. There is nothing for the washer to do but open and shut off the gun, the outfit is practically "fool proof."—Hayes Pump & Planter Co., Galva, Illinois.

The Editor's Book Table

Book Reviews

"A. S. T. M. TENTATIVE STANDARDS—1925." American Society for Testing Materials, Philadelphia, Pennsylvania. Paper, or Cloth, 876 pages, 6 by 9 inches. Illustrated.

THIS volume contains 194 tentative standards covering structural and industrial materials in wide variety, among them are 3 on rubber products, 8 on textiles, and 6 on insulating materials. These are of special interest to manufacturers, engineers and chemists in the rubber manufacturing industry. The standards and tentative standards of the A. S. T. M. are recognized as authoritative and invaluable in the field of engineering materials.

"NACHSCHLAGEBUCH DER NACHSCHLAGEWERKE FUR DIE WIRTSCHAFTSPRACIS." Published by Wirtschaftsdienst, G. m. b. H., Hamburg 36. Heavy paper, illustrated, indexed, 212 pages, about 9 x 11¼ inches.

This guide to reference books for economic practice has been compiled by the Hamburgische Welt-Wirtschafts Archiv (Hamburg Archives of World Economics), and lists books in the library, which comprise encyclopedias, year-books, statistics, directories, code-books, dictionaries, biographies, bibliographies, geographies, conversion tables of all kinds, besides works on raw materials, trade, banking, transportation, etc., for different countries of the world. Of the two appendices the first catalogs the world's important papers and magazines which the organization regularly obtains, while the second describes the development and scope of the Hamburg institution.

WEARING QUALITIES OF TIRE TREADS AS INFLUENCED BY RECLAIMED RUBBER. Technologic Papers of the Bureau of Standards, No. 294. Published by the Department of Commerce, Washington, D. C.

The investigations reported show the comparative value of reclaimed rubber in tire tread stocks. The advisability of substituting reclaimed rubber for new rubber becomes a matter of the relative cost of the two materials. Where resistance to wear is not of first importance reclaimed rubber may be used as satisfactorily as new rubber.

"HET KALANDEREFFECT EN HET KRIMPEFFECT VAN ONGEVULCANISEERDE RUBBER." By W. de Visser, published by J. H. de Bussy, Amsterdam. Paper, illustrated, 160 pages, 6¼ x 9½ inches.

The calender effect and the shrinking effect of unvulcanized rubber is the subject chosen by the author for his thesis. From a number of tests he concludes that the calender effect is accompanied by a change in the internal structure of rubber in which a certain arrangement and regularity of the particles appears. Partial crystallization of the rubber seems to be highly probable. On the other hand the shrinking effect can be explained by one of the earlier explanations of the calender effect given by Lunn or Hauser-van Rassem.

"FEWER TIRE SIZES." Compiled by R. M. Hudson, Chief, Division of Simplified Practice, U. S. Department of Commerce, Washington, D. C. November 1, 1925. Paper, 30 pages, mimeographed.

This report is a summary of views of motor car and motor truck manufacturers, tire and accessories manufacturers, dealers, organizations, car owners, and others interested in tire size elimination. The introduction of balloon and semi-balloon tires has seriously complicated the tire size problem and led to renewal of the movement to eliminate as far as possible economic waste now going on.

The Division of Simplified Practice has submitted this summary in the hope that the several interests will soon co-ordinate their views, presenting a tentative simplified line for adoption and work to maintain it thereafter at the minimum consistent with the real needs of the industry, the trade and the consuming public.

"RUBBER PRODUCTION IN THE AMAZON VALLEY." By William L. Schurz, commercial attaché, and O. D. Hargis, special agent, of the Department of Commerce, and C. F. Marbut, chief of Division of Soil Survey, and C. B. Manifold, soil surveyor, of the Department of Agriculture. Trade Promotion Series No. 23. Crude Rubber Survey. Published by the Department of Commerce, Washington, D. C. Paper, illustrated, 369 pages, 5¾ x 9 inches.

This report represents the fourth in a series of publications made under instructions from Congress for the purpose of investigating the possibilities for rubber planting in the Philippine Islands and Latin America. Divided into two parts, this bulletin discusses in its first section the history of the Amazon rubber industry; the present conditions; the possibilities for plantation development; and then compares the rubber planting opportunities of the Amazon Valley with those of the Middle East.

In the second division the Amazon Valley is described in more detail, the area covered comprehending that part of the Amazon drainage basin in which rubber is native or where natural conditions would permit of its cultivation. This area represents roughly the geographical limits of the native habitat of the Hevea, excluding only the higher Andean regions and certain minor sections unsuitable either because of unfertility or other causes. The total extent of this region approximates 2,250,000 square miles, divided as follows: Brazil, 1,486,900 square miles (Amazonas, 694,800; Pará, 424,600; Matto Grosso, 308,800; Acre Territory, 58,700); Bolivia, 200,000; Peru, 225,000; Ecuador, 100,000; Colombia, 150,000; and Venezuela, 30,000 square miles. Various good illustrations convey a general idea of the large territory considered, while several excellent maps add to the interest of this publication.

"THE TOPOGRAPHY OF THE AMAZON VALLEY." A study of surface and soil in upper Brazil by C. F. Marbut and C. B. Manifold of the United States Department of Agriculture. The Geographical Review, published by the American Geographical Society of New York (Established 1852), October, 1925, pages 617 to 642, 6¾ by 10 inches. Illustrated.

In this monograph the authors present a great amount of data collected by them concerning the vast inner basin of equatorial South America for the crude rubber survey of the United States Department of Commerce from August, 1923, to May, 1924, and which should be of much value to prospective rubber planters in that region. They traversed an area extending from Bragança, about 100 miles east of Pará, to the Pongo de Manseriche on the Marañon River in Peru, a distance of about 2,200 miles, and varying in width from 200 to 800 miles; and noted minutely earthy materials and geological and topographical conditions, indicating incidentally many striking deficiencies in even late and elaborate maps.

In correcting one popular misconception, the authors state that "the true alluvial flood plain of the Amazon is narrower than that of the Mississippi between Cairo, Illinois, and Baton Rouge, Louisiana, and its boundaries with the upland are just as well defined." In other words, the area of well-drained upland available for rubber or other cultivation is far more extensive than hitherto believed.

Dr. Marbut and Mr. Manifold are both connected with the Bureau of Soils, the former being in charge of national soil survey work and an authority on tropical soil and vegetation.

"DYKE'S AUTOMOBILE AND GASOLINE ENGINE ENCYCLOPEDIA." By A. L. Dyke. Fourteenth edition. Published by The Goodheart-Willcox Co., Inc., Chicago, Illinois. Illustrated, 1232 pages, with index, 7 by 10 inches.

According to its sub-title, this volume deals with the elementary principles, construction, operation and repair of automobiles, gasoline engines and automobile electric systems, trucks, tractors and

motorcycles. Thousands of illustrations aid in clarifying the data set forth under the main headings, which are further subdivided in the form of a series of instructions. The volume is carefully indexed.

"HEALTH MAINTENANCE IN INDUSTRY." By J. D. Hackett. Published by A. W. Shaw Co., Chicago and New York. Limp leather, illustrated, 488 pages with index, 6 by 9 inches.

The author, writing from practical experience, takes up the various problems of improving health and safety conditions in factory, store, or office. The volume is divided into five parts: Health Maintenance; The Medical Department; The Surgical Department; Plant Hygiene; and Plant Sanitation. Several of the leading rubber companies are especially mentioned as installing sanitary equipment and bettering their factory conditions.

"FINANCING A BUSINESS." By Joseph M. Regan, editor-in-chief Shaw Banking Series, and editor of Bankers' Monthly. Published by the La Salle Extension University, Chicago Illinois. Limp leather, illustrated, 362 pages with index, 6 x 8½ inches.

The main points in financing a business are covered in this practical volume, the headings of some of the most important of the nineteen chapters being: Planning and Starting the New Business; Interesting Capital in Your Concern; Making the Right Choice of a Banker; Everyday Financing That Pays; Financing Exports and Imports; Protective and Emergency Measures; and What To Do With Your Surplus.

New Trade Publications

"DE LAVAL PUMPS AT TULSA, OKLAHOMA" IS THE TITLE OF A new pamphlet describing an important installation made by the De Laval Steam Turbine Co., Trenton, New Jersey.

THE B. F. GOODRICH RUBBER CO., AKRON, OHIO, IS FEATURING its radio entertainments given by the "Goodrich Zippers," these programs being relayed each Thursday evening from Station WEAF, New York, to twelve other broadcasting stations. The name "Zipper" is derived from a popular type of women's overshoes manufactured by the Goodrich company.

Abstracts of Recent Articles

PREVENTION OF SHIMMYING BY HYDRAULIC STEERING CONTROL.—J. W. White, *Journal Society Automotive Engineers*, November, 1925, 490-493.

INVESTIGATIONS OF THE NATURE OF SLAB RUBBER.—Bruni, *Giornale de Chimica Industriclle ed Applicata*, August, 1925, 447-451.

NEW RUBBER SOFTENERS. Solvol, hexalin and heptalin.—Rudolph Ditmar, *Gummi-Zeitung*, October 9, 1925, 95.

ORGANIC ACCELERATORS IN VULCANIZATION IN HOT AIR. Review and general description.—J. Panem, *Revue Générale du Caoutchouc*, June, 1925, 11-12.

SMOKED SHEET RUBBER COAGULATED WITH ACETIC AND FORMIC ACIDS CONTAINING PARANITROPHENOL. Paranitrophenol can be incorporated with the rubber by dissolving the required quantity in the dilute acid used for coagulation. This method has the advantage that the rubber contains a definite amount of paranitrophenol.—H. P. Stevens, *Bulletin Rubber Growers' Association*, October 1925, 613-614.

AUTOMOBILE TIRE STANDARDS. New rulings regarding tire and felloe sizes.—*Gummi-Zeitung*, October 9, 1925, 96-98.

DIPHENYLGUANIDINE AS ACCELERATOR. Description of this accelerator, its use and effect.—Dr. G. Knoth, *Kautschuk*, October 1925, 14-16.

THE STRUCTURE OF CAOUTCHOUC.—P. Bary, *Revue Générale des Colloides*, 3, 225.

PLASTICITY DETERMINATIONS IN CRUDE RUBBER. IV. Difference between smoked sheet and pale crêpe. Tests show that while crêping has a decided, plasticising effect as compared with sheeting, water treatment and heating tend to minimize this difference which by the time smoked sheet and pale crêpe are ready for packing on the estates is of no practical importance.—Dr. O. de Vries, *Archief voor de Rubbercultuur*, October, 1925, 813-836. Tables.

MODERN COMPOUNDING INGREDIENTS. Part I. Discussion on certain accelerators, softeners and pigments. Test data, directions for their use and range of practical applications.—J. M. Ball, *Rubber Age*, New York, November, 1925, 92-94.

VISCOSITY OF RUBBER SOLUTIONS. Mathematical and experimental data.—C. L. Abernethy, *India Rubber Journal*, October 24, 1925, 775-783. Tables, Graphs.

FATTY ACIDS IN THE ACETONE EXTRACT OF HEVEA RUBBER.—P. Dekker, *India Rubber Journal*, October 31, 1925, 815-818.

MANUFACTURE OF CHEWING GUM AS DISPERSION PROBLEM. Discussion of methods of manufacturing chewing gum.—Rudolph Ditmar, *Gummi-Zeitung*, October 16, 1925, 156-158.

CONCENTRATION OF LATEX BY MEANS OF THE ULTRA-FILTRATION APPARATUS OF BECHHOLD-KÖNIG.—Rudolph Ditmar, *Le Caoutchouc et La Gutta-Percha*, October 15, 1925, 12,857-12,858.

THE IMPORTANCE OF CHEMICAL AND PHYSICAL METHODS IN RUBBER RESEARCH. Reviews recent developments including hydration of rubber accelerators; the study of latex with the aid of ultramicroscope; the structure of rubber as investigated with X-rays; and concludes that only by extending physical methods can a deeper insight into the structure of rubber be gained.—F. Kirchhof, *Gummi-Zeitung*, October 9, 1925, 93-94.

OXIDATION TESTS OF RUBBER GOODS. Best results were obtained when test pieces were stretched across a frame of small glass rods, hung under a bell glass and exposed to electrolytically produced ozone in combination with ultra violet rays from a mercury vapor lamp.—F. Peritor, *Gummi-Zeitung*, October 9, 1925, 94-95.

TRANSPARENT RUBBER GOODS. Dullness in transparent articles is due to heating the rubber by milling before dissolving. Milling should be eliminated, the solution should be carefully cleared of impurities, the articles allowed to dry on the molds for one hour between dips and be dried finally in a ventilated room at ordinary temperature. The benzine used should contain no element with boiling point over 70 degrees C.—Kath, *Gummi-Zeitung*, October 9, 1925, 99-100.

INFLUENCE OF MODERATE, PROLONGED HEATING ON THE TREND OF THE STRESS-STRAIN CURVES IN RUBBER VULCANIZED WITH AND WITHOUT ACCELERATORS. Prolonged moderate heating produces the same effect as doubling the period of vulcanization with 7.5 per cent sulphur at 135 degrees C. would have. The addition of large quantities of sulphur when accelerators are used is dangerous, particularly at high temperatures.—M. Le Blanc and M. Kröger, *Gummi-Zeitung*, October 2, 1925, 25-26. Tables.

MEASURES TO OBTAIN ECONOMICAL MANAGEMENT. Efficient management in stock rooms and factory by divisions of labor and utilization of machinery.—*Gummi-Zeitung*, October 2, 1925, 27-29.

RUBBER SOLUTIONS. Methods and apparatus for preparing solution for different purposes.—Kath, *Gummi-Zeitung*, October 23, 1925, 223-224.

THE CONSTITUTION OF HIGH-POLYMERIZING SUBSTANCES, CAOUTCHOUC, etc.—C. Staudinger, *Gummi-Zeitung*, October 30, 1925.

SIMPLE CONTROL OF THE DISTRIBUTION OF THE SULPHIDE CONTAINING INGREDIENT IN RUBBER GOODS.—*Gummi-Zeitung*, October 30, 1925, 277.

REPLETE WITH INFORMATION FOR RUBBER MANUFACTURERS. H. C. Pearson's "Crude Rubber and Compounding Ingredients."

The Obituary Record

First Secretary Firestone Tire & Rubber Co.

ON the evening of October 19 Dr. Louis E. Sisler, first Secretary of the Firestone Tire & Rubber Co., Akron, Ohio, died suddenly at his residence in Akron. Born sixty-five years ago, and spending his life in the State of Ohio, Dr. Sisler, although becoming a physician, was also interested in business affairs, assuming the duties of vice-president of the Firestone Park Trust & Savings Bank as well as making other business connections.

Dr. Louis E. Sisler

He served in the capacity of first secretary of the Firestone organization until late in 1905. He was also one of the company's original directors, which office he held at the time of his death. During the time of the funeral on October 22 the executive offices of the Firestone organization were closed, while officials of the company served as honorary pallbearers.

Dr. Sisler is survived by his widow, three sons and one daughter.

General Manager Premier Rubber Manufacturing Co.

Henry Spatz, for the past seven years general manager of The Premier Rubber Manufacturing Co., Dayton, Ohio, died on October 13 at the age of thirty-six. He had previously been associated for several years in various capacities with the Mechanical Rubber Co. At his first coming to the Premier organization he served as superintendent, later being appointed general manager. His passing is deeply regretted by both executives and operatives of his company, by whom he was held in great esteem. Mr. Spatz was a Mason, and a member of the Optimist Club of Dayton.

Henry Spatz

Chairman Johns-Manville Board

On the evening of October 19 Thomas Franklyn Manville, chairman of the board of directors of Johns-Manville, Inc., 292 Madison avenue, New York, N. Y., died suddenly of heart disease at his apartment in the Hotel Plaza, New York City. He was almost 64 years old.

At the time of his death he was, in addition to his duties as chairman of the board of directors of Johns-Manville, Inc., also president and director of the Arizona Asbestos Association and the Canadian Johns-Manville Co., Ltd. Other organizations with which he was connected as an executive included industrial concerns, railroads, research laboratories, banks, and hospitals. Mr. Manville's clubs included the Union League, Bankers, Metropolitan, Blind Brook, Indian Harbor Yacht, and India House.

He is survived by his son, Thomas F. Manville, Jr., and a daughter, Lorraine Manville Gould.

Former Superintendent Boston Rubber Shoe Co.

John W. K. Robson, former superintendent of the Boston Rubber Shoe Co., Malden, Massachusetts, died November 3 at his residence in Melrose at the age of seventy-five. In the year 1870 he entered the employ of the Boston Rubber Shoe Co., his father having previously been associated with that organization. The ability of the son was so conspicuous that in 1882 he was made superintendent of the company's Edgeworth plant, in 1898 becoming general superintendent of both the Edgeworth and Melrose plants. Much of the success of the organization is said to have been due to his good judgment and executive ability.

John W. K. Robson

Mr. Robson retired from active service with the company in 1907, and for the last year or two had been in poor health. Unmarried, he had made his home with a cousin, Miss Grace Richards, another cousin, John Richards, also residing in Melrose. Representatives of the Boston Rubber Shoe Co. from New York, as well as from Malden and Melrose, attended the funeral services.

Mr. Robson was one of the last of the old time rubber shoe superintendents. A quiet, self contained man, a conscientious worker and able executive, he was respected and loved by all. His loyalty to the great company in whose employ he spent the best part of his life was expressed in all he said and did. Civic pride, reliability, and respect for all that made for better things, marked him as a strong man whom the trade will miss.

Vice President United Color & Pigment Co.

On October 26 the death occured of Thomas H. Mangin, vice president of the United Color & Pigment Co., Newark, New Jersey, and a well-known figure in the dry color trade for more than forty years. Mr. Mangin's first connection was with James P. Barnett, whose organization was succeeded by Cawley, Clark & Co. Remaining with the latter concern until it was purchased by the du Pont interests, Mr. Mangin then became associated with his brother, Joseph J. Mangin, in the formation of the United Color & Pigment Co., taking an especial interest in the organization's sales activities.

THE SOVIET RUBBER INDUSTRY

The rubber industry of the Soviet Union is now producing at about 60 per cent of the pre-war volume, as compared with the production of 1920 which had fallen to 5 per cent. Of the seven plants under the rubber trust, only three are at present working regularly, although replacements are being made and substantial additions of new machinery are to be installed during the present fiscal year. A new tire factory is to be built near Moscow, while machinery to the value of $2,300,000 will be purchased in the United States, England, France and Germany.

News of the American Rubber Trade

Rubber Industry Outlook

OPTIMISM pervades business circles in all lines, encouraging enlargement of commodity production to meet the rising demand. Since immediate consumption requirements are influenced more by present than future conditions, the existing demand in all lines of commodities for winter and early spring needs doubtless justifies the current high speed production. Plans for the more distant future are subject to the policy of caution prevailing for the past five years in view of any possibility of shrinkage in values from unseen causes.

The rubber tire manufacturers are operating on schedules representing 80 per cent of capacity. It is forecast that tire output will rise again to maximum capacity in January.

The upward price trend of crude rubber, now well over the dollar level, caused the leading producers of tires to advance prices for original tire equipment. This action is thought to foreshadow a similar increase of prices to the tire consumer, should crude rubber continue to advance. Even with the series of tire price raises already in effect, tires are now selling only slightly above the 1923 level.

The report of the Department of Commerce as of October 1, 1925, shows that stocks of tires in the hands of manufacturers and dealers were 5,779,822 and 2,213,702 respectively, on October 1. These totals are but moderately in excess of the corresponding stocks reported on the same date one year ago.

A similar condition was reported in the case of inner tube stocks, the totals being, manufacturers 7,302,643, and dealers 3,486,120 tubes.

The crude rubber situation is causing manufacturers some concern due to a prospective shortage. It is estimated that crude rubber available for world consumption during the first quarter of 1926 will fall short of the amount needed by about 10,000 tons.

Removal of the export restriction early next year may cause severe disappointment to those who anticipate a heavy increase of supply above standard production. Rubber growers have, since restriction, discovered that alternate day tapping not only conserves bark but yields 95 per cent of standard production with no increase of labor force. Present prices being satisfactory to the growers, they reason why pay higher operating expenses and consume double the quantity of bark to obtain more rubber and thus depress the price.

The present prospect is that crude rubber will advance sharply between now and spring under forced bidding, for tire manufacturers are faced with a heavy demand for goods consequent on the phenomenal growth of the automobile industry.

Car production for October set the new record of 454,327 units, according to the National Automobile Chamber of Commerce. This compares with 439,125 in April, 1925, the best previous month. For November and December a gradual decline in production is expected. Truck and bus production are continuing on unabated high levels.

Dividends Declared

COMPANY	STOCK	RATE	PAYABLE	STOCK OF RECORD
Boston Woven Hose & Rubber Co..	Pfd.	$3.00	Dec. 15	Dec. 1
Boston Woven Hose & Rubber Co..	Com.	$1.50	Dec. 15	Dec. 1
Converse Rubber Shoe Co.....	Pfd.	3½% s.a.	Dec. 1	Nov. 15
Firestone Tire & Rubber Co.....	7% Pfd.	1¾% q.	Nov. 15	Nov. 1
Goodyear Tire & Rubber Co.....	Pfd.	$1.75 q.	Jan. 1	Dec. 1
Goodyear Tire & Rubber Co.....	Pr. Frd.	$2.00 q.	Jan. 1	Dec. 15
Hood Rubber Co.....	Com.	$1.00 q.	Dec. 31	Dec. 19
Miller Rubber Co.....	Pfd.	2% q.	Dec. 2	Nov. 10
Norwalk Tire & Rubber Co.....	Com.	$0.40	Jan. 1	Dec. 10
Norwalk Tire & Rubber Co.....	Pfd.	1¾% q.	Jan. 1	Dec. 10
Seiberling Rubber Co.....	Pfd.	2% acc.	Nov. 16	Nov. 5

Akron Rubber Stock Quotations

Quotations of November 19, supplied by Otis & Co., Cleveland, Ohio.

COMPANY	LAST SALE	BID	ASKED
Falls com.	9	...	9
Falls pfd.	20	...	18⅞
Faultless com.	43½	41⅛	44
Firestone com.	133	128	133
Firestone 1st pfd.	100½	...	101½
Firestone 2nd pfd.	99¾	100	100⅜
General com.	415	...	415
General pfd.	102¾	104	...
Goodrich com.	69	...	...
Goodrich pfd.	99½	...	...
Goodyear com. V. T. C.	42	40⅛	44
Goodyear pfd. V. T. C.	113¼	...	...
Goodyear pr. pfd. V. T. C.	104¼	...	...
India com.	173½	170	175
Miller com.	42	40	44
Miller pfd.	103¾	103	105
Mohawk com.	65	68	75
Mohawk pfd.	80	79⅝	80
Seiberling com.	25	25	25¼
Seiberling pfd.	98	...	97⅞
Star com.	15	...	15
Star pfd.	35	...	...
Swinehart	9	...	...

New York Stock Exchange Quotations

NOVEMBER 20, 1925

	High	Low	Last
Ajax Rubber, com.	11	10⅞	10⅞
Fisk Rubber, com.	25¾	25	25
Fisk Rubber, 1st pfd. (7)	115⅞	112	115½
Goodrich, B. F. Co., com. (4)	68¾	66¾	66¾
Goodyear Tire & Rubber, pfd. (7)	110	109⅜	110
Goodyear Tire & Rubber pr. pfd. (8)	107¾	106¾	106½
Kelly-Springfield Tire, com.	16⅞	16½	16⅞
Kelly-Springfield Tire, 1st pfd.	66½	66½	66½
Keystone Tire & Rubber, com.	2⅛	2	2
Lee Rubber & Tire, com.	14⅛	14⅜	14⅜
Norwalk Tire & Rubber, (1.60) com.	15	14½	14½
United States Rubber, com.	93⅞	90¾	90¾
United States Rubber, 1st pfd. (8)	108	108	108

New Incorporations

AIR & CUSHION TIRE CO., INC., November 9 (Delaware), $200,000. Incorporators: M. M. Lucey; M. B. Reese; L. S. Dorsey, all of Wilmington, Delaware. Principal office with the Colonial Charter Co., 927 Market street, Wilmington, Delaware. To buy, sell and deal in tires, tubes and accessories.

ANCHOR RUBBER CO., INC., August 29 (Massachusetts), $10,000. Max Margulis, president; Joseph Margulis, treasurer, both of 16 Morse street, Dorchester; Fred Freedman, clerk, 1729 North Shore Road, Revere, both in Massachusetts. Principal office, Cambridge, Massachusetts. To manufacture and deal in raincoats, rubber goods and clothing of all kinds.

BELLEVILLE MANUFACTURING CORPORATION, August 20 (New Jersey), 1,250 shares, no par value. Incorporators: Ida T. Turck; Barbara Leobel; Frederick G. Turck, all of 295 Greylock Parkway, Belleville, New Jersey. Principal office, 61-67 Belle avenue, Belleville, New Jersey. To manufacture rubber goods.

BUTLER FOUNTAIN PEN CO., October 26 (New Jersey), $50,000. Incorporators: Herman Rickman, Butler; Edward R. Kent, Madison; John G. Trusdell, 738 Broad street, Newark, all in New Jersey. Principal office, Central avenue, Butler, New Jersey. To manufacture and sell fountain pens, pencils and other products made from hard rubber.

C. & S. SHOE MANUFACTURING CO., July 22 (Massachusetts), $25,000. Frank G. Sullivan, president; Samuel Cohen, treasurer, both of 72 Lincoln street; Nellie L. Sopkin, clerk, 643 Province Building, both of Boston, Massachusetts. Principal office, Salem, Massachusetts. To manufacture and deal in rubber footwear.

CHECKER TIRE CO., INC., October 31 (New York), $20,000. Incorporators: W. T. Gardner, 4026 South 158th street, Flushing; L. W. Santasiere, 400 East 161st street, Bronx; Rosa Alexander, 208 West 85th street, New York, all in New York. Principal office, Manhattan. To deal in tires.

COTTER, GOODRICH & SARRA CO., September 11 (Massachusetts), $75,000. Charles F. Cotter, president and treasurer; John Cotter, vice-president and assistant treasurer, both of 45 Breed street; Matthew M. Cotter, clerk, 17 Harvest street, both of Lynn, Massachusetts. Principal office, Lynn, Massachusetts. To manufacture and deal in rubber goods.

HODGMAN HOLDING CORPORATION, October 29 (New York), $30,000. Incorporators: Conrad Hubert, 60 Tillary street, Brooklyn; Theodore Friedeberg, 210 Riverside Drive; J. F. Marks, 2 Seaman avenue, both of New York City, both in New York. Principal office, Tuckahoe, New York. To manufacture rubber shoes.

INTERNATIONAL RUBBER CO., September 14 (Delaware), 300,000 shares, no par value. Incorporators: S. L. Mackey, B. V. Saye, H. Kennedy, all of Wilmington, Delaware. Principal office with the Corporation Service Co., 901 Market street, Wilmington, Delaware. To deal in tires, tubes and mechanical rubber goods.

LEDERER MANUFACTURING CO., July 20 (Michigan), $50,000. J. B. Lederer, president; M. W. Lederer, vice-president; S. B. Lederer, treasurer; M. M. Fisch, secretary. Principal office, 1010 Beaubien street, Detroit, Michigan. To manufacture and deal in rubber articles.

MALBIN RUBBER CO., INC., October 29 (New York), $10,000. Incorporators: Irving Malbin, Irving and Julian Brill, all of 1440 Broadway, New York City. Principal office, Manhattan. To deal in raincoats and rubbers.

MOGAL RUBBER CO., November 6 (Delaware), $25,000. Incorporators: H. E. Potter, 49 North Ithan street, Philadelphia; Walter Hamstrom, Germantown; G. E. Robinson, Roxborough; all in Pennsylvania. Principal office with The Capital Trust Company of Delaware, Dover, Delaware. To manufacture and deal in rubber and gutta percha.

NON-SKID BALLOON HEEL CORPORATION, October 27 (Delaware), 1,000 shares, no par value. Incorporators: M. King Schrager, 10 South LaSalle street; Dominic H. Valens, 9422 Champlain avenue; Bradford J. Clark, 5036 South Michigan avenue, all of Chicago, Illinois. Principal office with the Colonial Charter Co., 927 Market street, Wilmington, Delaware. To manufacture and deal in rubber products and rubber heels of every description.

NU-WAY SERVICE, July 9 (Arkansas), $10,000. M. K. Taylor, president; Mrs. A. M. Hart, secretary; A. M. Hart, vice-president; Mrs. M. K. Taylor, treasurer. Principal office, 515-517 Main street, Pine Bluff, Arkansas. To deal in tires and accessories.

O'NEIL SHOE CO., October 27 (Massachusetts), $50,000. Daniel A. O'Neil, president, 48 Thomas Road, Swampscott; Joseph A. Finkovitch, treasurer, Gibbs street, Brookline; Herman A. Mintz, clerk, Pine Lodge, Sharon, all in Massachusetts. Principal office, Natick, Massachusetts. To manufacture and deal in rubber goods of all kinds.

PARKLAND TIRE & RUBBER CO., September 9 (Kentucky), $100,000. Henry W. Imorde, president; John D. Cary, vice-president; A. F. Faure, secretary and treasurer; Herbert W. Lantz, factory manager, all of Louisville, Kentucky. Principal office, 26th and Howard streets, Louisville, Kentucky. To manufacture balloons and tires.

JOHN S. SMITH CO., June 22 (New Jersey), $5,000. John S. Smith, president; Anna Marie McCloskey, secretary and treasurer, both of Moorestown, New Jersey. Principal office, Moorestown, New Jersey. To deal in tires.

T. & B. RUBBER CO., November 4 (New Jersey), $50,000. Incorporators: Harry W. Blaisdell, Gioacchino and Solve Tuso, all of Vineland, New Jersey. Principal office, Chestnut avenue between West avenue and Second street, Vineland, New Jersey. To manufacture rubber goods.

TRIUMPH RUBBER CORPORATION, November 10 (New Jersey), 500 shares preferred stock, $100 par value; 1,000 shares common stock, no par value. Incorporators: Frederick A. Schultz, Albert and Marcel Calvet. Principal office, 525 Main street, Lodi, New Jersey. To manufacture and deal in rubber boots, and shoes.

WAYNE PROCESS TIRE CORPORATION, November 10 (Delaware), $1,250,000. Incorporators: E. E. Craig, J. M. Townsend, A. L. Raughley, all of Dover, Delaware. Principal office with the United States Corporation Co., Dover, Delaware. To deal in letter patents.

WIRE CORD TIRE CORPORATION, November 18 (New York) 100 shares no par value. William R. Crawford, Jr., D. M. Black and Robert H. Scholl, all of 120 Broadway, New York City. Principal office, Manhattan. To manufacture tires.

The Rubber Trade in the East and South

For the ninth annual roll call of the American Red Cross, H. Stuart Hotchkiss, vice-president of the United States Rubber Co., 1790 Broadway, New York, N. Y., accepted the chairmanship of the rubber group, while Earle V. Hennech, of the Moto-Meter Co., took charge of the accessory manufacturers and tire dealers group. The drive began on Armistice Day, November 11.

J. M. Huber, Inc., 130 West 42nd street, New York, N. Y., is now associated with the Blue Ridge Oxide Co., as exclusive distributer of Blue Ridge C. P. red oxide, an ingredient used by rubber manufacturers in the production of red inner tubes.

The Pioneer Rubber Mills, 345-353 Sacramento street, San Francisco, California, report that H. R. Mansfield, vice-president in charge of production, is now taking a business trip to New York City and the eastern part of the United States.

After a lapse of some years, the Industrial Chemical Co., 200 Fifth avenue, New York, N. Y., is again offering to the rubber industry its improved brand of Alba whiting.

W. C. Withers has joined the sales force of the New York branch, 250 West 54th street, of the India Tire & Rubber Co., Akron, Ohio. Mr. Withers was formerly carrying forward special sales work for the Goodrich organization, later becoming associated with the Republic company.

Robert L. Baird, vice-president of the Baird Rubber & Trading Co., 233 Broadway, New York, N. Y., recently sailed with his wife on the "Berengaria," for a trip abroad of five or six weeks.

Wallace L. Gough & Co., crude rubber brokers, are now located in the Corn Exchange Bank Building, 15 William street, New York, N. Y.

The Watson-Stillman Co., 50 Church street, New York, N. Y., specializing in hydraulic machinery, has purchased the rights to the manufacture and sale of the braiding machine business of the National Indicator Co., Long Island City, New York, including the "Paragon Swift" braiding machine and its accessories. M. E. Penso and F. Klein will take charge of the textile department maintained by the Watson-Stillman company.

The Elmhurst Rubber Co., Inc., Elmhurst, Long Island, New York, is a new organization which will be operated under the same management as was the former Middlesex Rubber Co., Reading, Massachusetts. The new company has purchased a factory in Elmhurst, and enlarged it for the purpose of manufacturing sponge rubber, rubber bands, molded specialties, and various lines of druggists' rubber sundries. Executives include: Charles H. Traiser, president; George E. Jeandheur, secretary, treasurer, and general manager, and H. H. Schlosser, factory superintendent.

The Hudson Tire & Rubber Corporation, Yonkers, New York, has been duly considered bankrupt by the United States District Court, Southern District of New York. The first meeting of creditors of the organization was held December 1 at the County Court House, White Plains, New York, before William C. Duell, referee in bankruptcy.

The Paracord Co., Inc., Johnson City, New York, specializes in the manufacture of rubber soles and heels, and is a subsidiary of the Endicott-Johnson Co., also of Johnson City.

During the past year the Rubber Regenerating Co., Naugatuck, Connecticut, has considerably extended its operating facilities, and is still carrying forward some construction work, with the result that the plant output has been materially increased. The company, which manufactures reclaimed rubber for all purposes, is headed by E. A. Anderson.

The Lee Rubber & Tire Corporation, Conshohocken, Pennsylvania, reports a profit for the first nine months of 1925 of $237,000, as compared with a loss of $173,000 for the same period of the previous year.

The Johnstown Tire & Rubber Co., Johnstown, Pennsylvania, is manufacturing Cambria balloon cord casings, as well as heavy duty cord tires. The former class of goods is produced in three sizes, and the latter in twelve.

The Cord Tire Corporation, Chester, West Virginia, manufacturer of "Superior" casings, has appointed Charles E. Brooks district manager of Maryland, Virginia, North Carolina, South Carolina, and the District of Columbia.

C. E. Siegfried, general manager of the Dunbar Rubber Co., Charleston, West Virginia, plans to begin operations on a full time basis with a force of 1,000 hands. The plant capacity is 1,000 tires and 1,500 inner tubes daily in addition to a considerable quantity of mechanical rubber goods.

Officials of Rubber Trade Association

At the recent annual meeting of the Rubber Trade Association, Inc., 75 Maiden Lane, New York, N. Y., the following were elected members of the new board of directors: H. A. Astlett, W. T. Baird, W. E. Bruyn, R. L. Chipman, D. D. Haldane, J. T. Johnstone, O. Meyer, F. Pusinelli, E. Stevenson, W. H. Stiles, H. F. Tiedeman.

The board of directors reelected the following executives: H. A. Astlett, president; F. Pusinelli, vice-president; R. L. Chipman, treasurer; J. P. Sullivan, secretary-manager.

The board of directors fully discussed the advisability of establishing a New York Rubber Exchange, the consensus of opinion

was that such an organization would be inadvisable and even detrimental to the best interests of manufacturers, importers, dealers and others engaged in the rubber industry.

Executives of the Lee Rubber & Tire Corporation

Although the main offices of the Lee Rubber & Tire Corporation have been moved from New York City to the company's factory at Conshohocken, Pennsylvania, a New York branch where tires and tubes will be handled will be maintained at 55th street and Seventh avenue. The Republic Rubber Co., a subsidiary organization, will also carry solid tires and mechanical rubber goods at its branch at 27 West 60th street.

Executives of the Lee company are as follows: John J. Watson, Jr., president and chairman of the board; A. A. Garthwaite, treasurer and general manager; John Kearns, vice-president in charge of manufacture; H. E. Field, vice-president in charge of sales; D. A. Paterson, advertising manager; Henry Hopkins, Jr., secretary; William B. Dunlap, assistant secretary and assistant treasurer.

John Kearns, vice-president in charge of manufacture, is at present taking a trip around the world. In the course of his journey he will visit various rubber plantations in the Far East. During his absence the Republic division will continue under the direction of James C. Connors, general manager.

The Rubber Trade in New Jersey

The New Jersey rubber industry as a whole is fairly good in all lines. However, hard rubber manufacturers are complaining because prices for goods do not correspond with the high cost of crude rubber. They are holding prices in anticipation of lower priced crude. The rubber reclaiming plants continue to prosper under the high cost of rubber, and tire manufacturers are enjoying a good business. In fact some of the plants are producing as many tires and tubes as during the summer months. All the mechanical rubber goods factories have plenty of orders on their books.

Sales managers of some of the Trenton manufacturers "took to the road" during the month to take care of business and book orders for the early spring business. Ray H. Paddock, general sales manager of the Murray company, spent ten days in the western and southern states, while F. W. Servis, general sales manager of the Combination company, took care of business in the western states. The Luzerne Rubber Co., Trenton, New Jersey, reports that business continues good in all lines of hard rubber products. The company is particularly busy on radio parts.

A third complaint against railroad rates on asbestos packing has been filed with the Interstate Commerce Commission at Washington, D. C., by the Thermoid Rubber Co., Trenton, New Jersey. In this and in previous complaints the Thermoid company alleges the roads apply an improper classification to asbestos packing, reinforced with metal, and shipped in bales. The roads handle the packing as first class freight, whereas it should be classified as second class in less than car load lots, the complaint declares. The commission is asked to order the roads to reclassify asbestos packing and to refund to the Thermoid company overcharges collected on previous shipments.

J. H. Stedman, of South Braintree, Massachusetts, has instituted suit in the United States District Court at Trenton, New Jersey, against the Puritan Rubber Co., Trenton, involving an alleged patent infringement. It is the contention of the complainant that the Puritan company infringed a patent in connection with the method of making rubber tile. Judge Rellstab reserved decision in the case.

Trenton tire manufacturers have abolished the old plan of spring dating and have inaugurated a new one. Beginning this year tires will be delivered to dealers in January and they will be given ninety days in which to make payment. They were formerly allowed to make three payments and this has been cut down to two. The dealers are well pleased with the new plan.

No attempt has yet been made to open the plant of the Trent Rubber Co., Trenton, New Jersey, which was purchased at receiver's sale and confirmed by the federal court.

The Pierce-Roberts Rubber Co., Trenton, New Jersey, reports a good demand for druggists' sundries of all kinds.

J. Philip Bird and Edward C. Rose, the receivers of the United & Globe Rubber Corporation, Trenton, New Jersey, state that the total claims filed against the organization amount to $1,168,574.93. The returns which the receivers hold are: cash, $66,986.85; mortgage upon the property at Prospect and Frazier streets, $196,250. A settlement made now with the creditors would pay about 20 per cent, not however in cash. The receivers believe that it is possible to reduce some of the claims, and if this is accomplished, the estate may pay as high as 35 per cent.

Frank C. Braden, sales manager of the Victor-Springfield tire division of the Hamilton Rubber Manufacturing Co., Trenton, New Jersey, has returned from a month's trip through southern and western states, and reports increasing sales and a large demand for the Trenton made goods. The company handles fleet business and bus lines through dealers exclusively.

The Ace Machine Co., Inc., specializing in molds for mechanical rubber goods and special rubber machinery, has acquired larger and more commodious quarters at 929-935 Market street, Paterson, New Jersey. At the new plant a number of new machines have been installed, while a larger force of men is necessary to take care of the additional work.

Several changes have taken place at the Lambertville Rubber Co., Lambertville, New Jersey. Edward Nicar, formerly connected with the Firestone company, has been appointed general superintendent. K. B. White has resigned as production manager and Joseph Sutterly, a department foreman, has been promoted to the position. John Cruise takes Mr. Sutterly's place as foreman.

The Safety Cable Co., Bayonne, New Jersey, has acquired the common and a large part of the preferred stock of the A-A Wire Co., Harrison, New Jersey. The first-mentioned organization also recently made arrangements with the Phillips Wire Co., Pawtucket, Rhode Island, whereby it secured a considerable part of the Phillips stock. The figures for shipments of these three companies from September 1 to date are said to show an increase of about 20 per cent over the corresponding figures for 1924.

The Manhattan Rubber Manufacturing Co., Passaic, New Jersey, has established a direct factory branch in Philadelphia, Pennsylvania, at 2132 Market street, the former headquarters of John S. Latta & Co., Inc. Mr. Latta will be in charge of the new branch which will carry a full supply of the mechanical rubber goods manufactured by the Manhattan company.

The Rubber Trade in Massachusetts

Practically all the rubber producers in Massachusetts are enjoying a record volume of business. The publicity in the daily press on the crude rubber situation has stimulated forward buying both by retailers and wholesalers, with the result that footwear production schedules have been materially increased. Those concerns enjoying a wide distribution have participated in this spurt more than those with more confined selling fields.

Weather conditions this fall have been favorable to rubber footwear business. Overshoes, especially the automatic fastener styles, were worn during October and November by both men and women at football games. Raincoats have once more become stylish in the college towns as a result of the weather at the Harvard-Yale games of the last few seasons, and many of the proofing concerns are experiencing the best business since the war.

Mechanical lines report fair business, and the heel and sole divisions find both cobbler and manufacturer demand far ahead of last year. Reclaimers are taxed to capacity with no let-up in sight.

Tire and tube manufacturers, while not numerous in this state, are getting their full share of business, and several of the large producers have materially increased their volume this year.

Heel and sole prices have been advanced to take care of the new crude rubber basis, but thus far the volume has not been affected as manufacturers find the rubber sole far outwears leather and is cheaper to use.

Malden, Massachusetts, rubber plants are operating on five day schedules and report a good volume of orders ahead. This does not mean that the plants are on short time, as it is very difficult to schedule smaller plants for a half day Saturday. By increasing production on each of the five week days to equal what would be produced Saturday, the companies have found that absenteeism is reduced and efficiency increased. There is the added advantage in the winter, when the footwear rush starts, as Saturday production can be added immediately without requiring any new employes, and the peak demand is met very effectively.

The Fisk Rubber Co., Chicopee Falls, Massachusetts, has been doing a record business, and various rumors have been rife about payment of back dividends. The company recently authorized the following statement: "The report that The Fisk Rubber Co. will issue an 8 per cent convertible preferred stock in payment of back dividends is absolutely without foundation."

The Converse Rubber Shoe Co., Malden, Massachusetts, has enjoyed exceptional tire business this summer, and reports good demand for its footwear specialties such as basketball shoes, "Caboose" rubbers, and "Rod and Reel" boots. John Converse, eldest son of M. M. Converse, president, has returned from the Los Angeles branch of the Converse Tire Co. to assume the post of general sales manager of tires; Ralph Converse the youngest son, is now assistant treasurer. Hugh Bullock remains treasurer and general manager, and Chester A. Emerson, superintendent.

The Boston Rubber Shoe Co., Malden, Massachusetts, is rebuilding its cement and varnish plant, destroyed by fire last spring. W. A. Wilmot is factory manager.

The Boston Woven Hose & Rubber Co., Cambridge, Massachusetts, is increasing the capacity of its Plymouth reclaiming plant.

Killion Rubber Co., Dorchester, Massachusetts, manufacturer of heels, is increasing production, and has been advertising for pressmen and cutters in the Boston press.

The Stowe & Woodward Rubber Co., Newton Upper Falls, Massachusetts, is building an addition to the main plant which will materially increase capacity. The company manufactures rubber covered rolls, bowling balls, and specialties.

Interest in the gallant Harvard football team was keen among Boston rubber circles this year, as Marion Adolphus Cheek, captain and star player, is the son of M. A. Cheek, Firestone's crude rubber expert.

Herbert Baxter, for many years with the Hood Rubber Co., is now superintendent of the E. H. Clapp Rubber Co., Hanover, Massachusetts, succeeding the late Martin Mullen.

J. D. Anderson is now vice-president of The Fisk Tire Co., Inc., Chicopee Falls, Massachusetts, with jurisdiction over the output of all Fisk rubber plants. He will make his headquarters in New York City. M. A. Marquette, formerly production superintendent, has also been appointed general superintendent and M. F. Sullivan is his successor.

The Converse Rubber Shoe Co., Malden, Massachusetts, is now running its plant at capacity, with an output of 16,000 pairs daily. In order to produce this amount of footwear, some departments are obliged to maintain a night schedule. The Converse Tire Co., a subsidiary organization, is also operating on a profitable basis, with a production of 300 tires and 500 tubes daily.

The Firestone Tire & Rubber Co., Akron, Ohio, is preparing plans for the enlargement of two of its Massachusetts plants, these to include the erection of a five-story addition to the Firestone-Apsley footwear factory at Hudson, to cost approximately $500,000, and providing employment for 500 more hands; the other improvement being an extension of Firestone Cotton Mills at Fall River, Massachusetts, involving an expenditure of about $250,000. This addition will increase the plant capacity 20 per cent, and give work to 300 additional operatives.

The Clifton Manufacturing Co., 99 Chauncy street, Boston, Massachusetts, is manufacturing calendered clothing, blankets, ponchos, aprons, hats, single and double texture raincoats, protective covers, friction and rubber insulating tapes, hockey pucks, coated gem duck, etc. Frank C. Tenney is president and treasurer, and N. Lincoln Greene is vice-president and general manager.

The E. H. Clapp Rubber Co. has purchased a two-acre tract in Hanover, Massachusetts, where cottage homes will be erected for employes. There are at present 25 such homes owned by the company in town. The proposed cottages will be opposite the old tavern, famous because Daniel Webster used to stop there for rest and refreshment on his journeys from Marshfield to Boston. The Clapp company is one of the oldest rubber reclaiming concerns in the country and at present employs 500 hands.

The New York Belting & Packing Co., a subsidiary of the United States Rubber Co., has taken a lease of the entire third floor at 20-24 East street, Boston, to be used as executive and sales headquarters for New England after February 1.

The plant of the Middlesex Rubber Co. in Reading, Massachusetts, has been shut down and the business transferred to the factory at Elmhurst, Long Island, N. Y. A few of the employes went to Long Island, but most of the 50 hands are unemployed. The factory turned out hot water bags, rubber bands and other small rubber articles.

Edwin A. Stone, who was superintendent of the cutting room of the Firestone-Apsley plant at Hudson, has resigned and is now with the Cambridge Rubber Co., at Cambridge, Massachusetts.

More than 150 employes of the Panco Rubber Co., Chelsea, Massachusetts, were guests of the executive force of the Panther Rubber Co. in Stoughton on Hallowe'en. Costume prizes were awarded and many stunts featured the program.

A. Webster Butler, Brockton, Massachusetts, inventor of a new paving block, was given permission to lay these blocks on a section of Main street at the junction of Crescent street, Brockton. The blocks are a composition of scrap tires and steel wiring, and were laid in a mixture of tarvia and asphalt.

At the tenth annual meeting of the Associated Industries of Massachusetts the personnel of the executive committee chosen for the fiscal year 1925-1926 included men of prominence in the various industries. Among the names mentioned are those of George E. Hall, president and general manager of the Boston Woven Hose & Rubber Co., Cambridge, Massachusetts, and Frederick C. Hood, president of the Hood Rubber Co., Watertown, Massachusetts.

Centennial Anniversary Rubber Dinner

In order to celebrate the one hundredth anniversary of the establishment of the rubber industry, as founded in 1825 by Thomas C. Wales, and also for the purpose of honoring Charles Goodyear, a dinner will be held December 7 at the New Boston Chamber of Commerce, 80 Federal street, Boston, Massachusetts. Those associated with rubber and affiliated industries of New England, and who are unable to attend the annual dinner of the Rubber Association held in New York City each January, should be especially interested in the proposed anniversary to be held in Boston.

There will be a reception at 5:15 P. M. followed by a technical conference at 5:30 P. M.; when papers on guayule rubber and rubber latex will be read. The dinner will be at 6:30 P. M.

Executives Hood Rubber Co.'s Factory

The Hood Rubber Co., Watertown, Massachusetts, expects the 1925 sales to be the greatest in its history. The new tire plant additions have been completed bringing tire capacity to almost four times what it was several years back. The footwear schedule has been increased to 75,000 pairs per day which makes the present ticket the largest in history as the quota of boots and heavy footwear is far in excess of former output. The company is running at capacity on heels and soles, and battery boxes as well as other hard rubber products. Development work under the direction of A. A. Glidden is proceeding rapidly, and many rubber goods, never before produced by Hood, are being prepared for production. C. H. Roper is general superintendent, C. W. Johnson, factory manager, footwear; R. A. Muir, factory manager, tires and tubes; H. C. Patrick, factory manager, hard rubbers and heels; and R. A. Blanchard, factory manager State Rubber Co. and reclaiming plant. N. E. Tousley is technical manager.

The Rubber Trade in Ohio

Following curtailment early in the fall, when spring dating was abolished, production in Ohio tire factories is again on the upward trend. By the first of the year, or shortly thereafter, it is expected that most of the plants will be operating close to capacity. During the latter part of November many departments which had been on a five day a week basis began running on full time schedules. This principally applies to tire departments.

Production of rubber footwear and mechanical rubber goods has been increasing rapidly. Early winter weather has resulted in a heavier demand than usual for rubber boots and shoes and sales are reported large. Between 25,000 and 30,000 pairs are being manufactured daily in Akron, an increase of more than 25 per cent over production a month ago. Plans call for a considerably higher output later in the season. Akron is becoming a center for rubber boot and shoe manufacturing, largely as a result of expansion in the footwear business of The B. F. Goodrich Co., now one of the largest producers of these goods in the country.

Although none of the large rubber manufacturers are accepting deferred payment orders for tires, which has been done in the past to stimulate production, dealer business is good and many distributers are ordering large shipments. In the last few weeks the demand for tires both in this country and abroad has been better than was anticipated.

A substantial advance in prices of original tire equipment to manufacturers of passenger cars and trucks is being put into effect, and will offset to a large extent the increased cost of crude rubber to the tire companies. Rubber is now selling above $1 a pound, compared with 20 cents a pound in June, 1924. The increase in tire prices ranges around $10 on small cars, $25 to $40 on the medium class machines and $110 to $125 on trucks, and is likely to result in an increase in prices of cars within the next few months. Since last May, advances aggregating 60 per cent have been made in the price of tires to dealers, and this increase to automobile manufacturers is to bring the price of original equipment into line with the prevailing retail price of tires. Owing to the uncertainty prevailing in the crude rubber market, no long term contracts for supplying original tire equipment are being entered into between motor car manufacturers and the rubber companies. About the longest contracts being made are for sixty days, most of them being for less time. Inasmuch as this kind of business is accepted by the rubber companies at a very close figure, which provides only a small profit, a sudden change in the rubber market in either direction would be serious for them.

Following the completion of a $1,000,000 refinancing plan, the American Rubber & Tire Co., Inc., Akron, Ohio, will again resume operations, after a shutdown of nearly four months. The company was organized in 1916, but for the past three years has had difficulty in meeting its obligations, although the business has been steadily increasing. Under the new funding scheme the organization will be able to operate in the future at a profit. F. C. Snyder is president; J. T. Johnson, vice-president; E. L. Schmock, sales manager; C. T. Morledge, assistant sales manager; W. C. Fornoff, credit manager; R. C. Myers, auditor, and W. F. Goff, superintendent.

John F. Joseph, for twenty-eight years connected with The B. F. Goodrich Co., Akron, Ohio, and who had risen from a subordinate position to becoming superintendent of the company's mechanical rubber goods department, has resigned in order to attend to personal affairs.

Gilbert L. Mathias, who since 1912 has been connected with The B. F. Goodrich Co., Akron, Ohio, has been appointed superintendent of the company's mechanical rubber goods department, succeeding John F. Joseph, who recently resigned. Mr. Mathias' first duties with the Goodrich organization included the work of a machine designer, while he later became assistant manager, and finally manager of the Goodrich experimental department. During last April he was appointed manager of the machine and process development department. Mr. Mathias is a Mason and a member of the Exchange Club of Akron.

Gilbert L. Mathias

Frederick J. Gostlin has been appointed assistant factory superintendent of the Mohawk Rubber Co., Akron, Ohio. Mr. Gostlin was for a number of years connected with The B. F. Goodrich Co. and later with the Kelly-Springfield Tire Co.

At the recent Atlantic City convention of the American Railway Association a good showing was made by the India Tire & Rubber Co., Akron, Ohio. From a building near one of the piers a large advertising balloon was moored which bore the letters "India Balloon Tires" and "India Bus Tires," while one of the features at the convention exhibit was a large Fageol bus equipped with India 36 by 8 heavy service bus tires.

C. W. Lequillion is now manager of the machine and process departments of The B. F. Goodrich Co., Akron, Ohio.

The current trend in truck and bus tire construction is toward tires with greater air space and longer in section. The Miller Rubber Co., Akron, Ohio, announces an improvement along these lines in the five, six, seven, eight, nine and ten inch bus and truck tire sizes, which makes them particularly suitable for buses and high speed trucks.

An improved process for reclaiming rubber is reported to have been perfected by Charles O. Sipe, of Canton, Ohio. Inner tubes manufactured under the new process are said to give 27,000 miles of service. The McKinley Rubber Co. has been formed with $50,000 capital to produce this special grade of reclaimed rubber.

The Laursen water cure process in tube manufacture is an unqualified success according to F. A. Seiberling, president of the Seiberling Rubber Co., Akron, Ohio. He states that tubes cured by the Laursen method in his plant were 100 per cent perfect, and that five to ten per cent of tubes vulcanized by "cooking" in live steam were blemished. The Laursen process has been used for the past few months in manufacturing nearly the entire output of Seiberling tubes. The company has under construction new additions which will cost with equipment nearly $250,000, and be completed January 1.

The entire new issue of $4,000,000 preferred stock was sold in advance by the Miller Rubber Co., Akron, Ohio. Miller

common stock has been split up on a basis of five shares of new stock for one share of the old issue.

Officials of the India Tire & Rubber Co., Akron, Ohio, announce that net earnings for the first nine months of the year were equal to $39.74 a share on the common stock. Total net profit for the year is expected to be close to $50 on each share. The company is now building an addition, costing around $200,000, to take care of increased business anticipated next year.

Large gains in sales and net profits are reported by the Mason Tire & Rubber Co., Akron, Ohio, for the first nine months of the year. Earnings, after all charges, for the third quarter of the year, were several thousand dollars more than earnings for the first six months of 1925. Sales for the nine months were $7,550,540, and profits, $126,939.

The Defiance Rubber Co., Defiance, Ohio, is completing a new unit, and new machinery will be at once installed. The plant is at present running twenty-two hours a day, and the new unit will be operated on the same schedule, thus permitting considerable increase in ouput. The Defiance company, besides specializing in reclaimed rubber, also produces hard rubber dust, and other hard rubber products for manufacturers. C. L. Kintner is in charge of the company's output.

The E. G. Marquis Co., 214-16 East Gay street, Columbus, Ohio, conducts a Firestone truck tire service station, and carries a complete line of Firestone tires.

Leonard Strobeck has been appointed general manager of The Premier Rubber Manufacturing Co., Dayton, Ohio, succeeding Henry Spatz, whose death occurred on October 13. Mr. Strobeck has had a wide experience in the rubber industry.

Tire making machinery and other equipment of the bankrupt Pittsburgh Rubber Co., East Liverpool, Ohio, together with the factory buildings are for lease or sale by the Continental Trust Co., trustee. The Pittsburgh Rubber Co. was formerly the McLean Tire & Rubber Co.

A new addition to the sales force of the India Tire & Rubber Co., Akron, Ohio, is C. S. Fuller, formerly of The Denman-Myers Cord Tire Co. Mr. Fuller has been traveling the states of Iowa, Illinois and Indiana out of Chicago for the last five years, and will cover the northern parts of Indiana and Illinois for the India company.

P. W. Litchfield Counsels Planting

To anticipate the world's increasing demand for rubber, and to keep down prices of manufactured goods, at least a million acres of rubber trees should be planted at once, is the opinion of P. W. Litchfield, first vice-president of The Goodyear Tire & Rubber Co., Akron, Ohio.

"The Goodyear and United States rubber companies started planting several years ago, and other rubber companies are seeing the need of doing likewise. Goodyear is now getting large quantities of crude rubber from its plantations in the Far East," he added. "As long as business continues good and money easy, which observers predict will be for an indefinite period, the present condition is favorable for the rubber industry. Our only danger is a sudden slump, such as that which followed the war."

Despite the soaring price of crude rubber, and the prospect of continued high prices, Mr. Litchfield predicts a "fair profit and a fair price" in 1926 for rubber manufacturers. He believes that finished rubber products are likely to follow the upward price trend of crude materials. There now is but a three months' supply of crude rubber in the world, he points out, and it takes at least two months to get rubber from plantation to factory, illustrating why the manufacturers are unable to accumulate a surplus of crude rubber stock. While the consumption of crude rubber has increased 25 per cent in the last year, Mr. Litchfield states the use of reclaimed rubber has increased 70 per cent, thus relieving an acute situation, and helping to stabilize the price of crude.

Firestone Planting Activities

H. S. Firestone is proceeding with plans for developing his million acre tract under lease in Liberia. A small tract of *Hevea brasiliensis* is now under cultivation there, and he proposes to plant rubber trees on the entire acreage, as rapidly as the land can be cleared. Donald A. Ross has been made chief of operations in Liberia, and Harvey Firestone, Jr., is now in London, where the European headquarters of the company are being organized. M. A. Cheek, buyer of crude rubber for the Firestone company in Singapore, is temporarily stationed at the Akron office, interviewing applicants for positions with the company in Liberia. Men and supplies are now being sent to the South African republic at frequent intervals. Scores of engineers and soil experts are included in the personnel. Mr. Firestone has announced that he will spend $100,000,000 in establishing the Liberian rubber plantations. He has advocated for years that Americans should produce their own rubber. The best quality of rubber can be grown in Liberia at a low cost, he states.

The Firestone company has leased 35,000 acres of rubber land in Tobasco, Mexico. For several months the company has been perfecting the plantation organization. Three hundred and fifty acres of the Mexican land are now producing rubber. Mr. Firestone states he is also considering planting rubber in the Amazon valley in Brazil.

The Rubber Trade in the Midwest

The Firestone-Apsley Rubber Co., Hudson, Massachusetts, has leased the lower floor and basement of the Montauk Building, 501 Franklin street, Chicago, Illinois, and will take possession at once. The branch was formerly located at 230 West Monroe street.

The Ed R. Novak Co., 3809 Ogden avenue, Chicago, Illinois, is a wholesale distributer for tires, tubes, rims, automobile accessories, etc. For thirty-two years Mr. Novak has been associated with the rubber industry, beginning work in 1894 in the Chicago office of the Goodyear's India Rubber Glove Manufacturing Co.

The Ajax Rubber Co., Racine Division, Racine, Wisconsin, is operating with practically a full force. During the summer and fall over 1,500 people have been employed.

The Ott Rubber Co., Dubuque, Iowa, is operating on a ten-hour working day basis, the factory having been run overtime for the past three months. The company specializes in the manufacture of inner tubes for automobiles and swimming tubes. Frank E. Ott is secretary and treasurer.

Foreclosure on the property of the Blekre Tire & Rubber Company of Minnesota, St. Paul, Minnesota, was asked in the District Court by Samuel F. Nelson, trustee under a bond issue which gave the Minneapolis plant as security for payment. The petition asks that the amount of the bond issue be determined, claiming that the issue is $544,000 out of an authorized issue of $550,000, and reciting that the company failed to pay interest on the bonds in 1924 and 1925.

A verdict of $12,612.06 was awarded the Miller Rubber Co., Akron, Ohio, in the Federal Court of Minneapolis as damages in a suit against the F. W. Abbott Co., a Minnesota corporation, E. G. Paterson, and F. W. Abbott, surety bondsmen, for alleged failure to live up to a contract whereby it was said that the Miller company was to receive commissions on sales by the Abbott company, which company also was to return unsold merchandise to the rubber company.

Thomas W. Gagnon has succeeded R. F. Keller as manager of the Minneapolis, Minnesota, branch of the Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut. Mr. Gagnon has for the past three years covered the northern Minnesota territory in the interests of the Beacon Falls organization.

A business trip to Salt Lake City and Denver is now being made by D. D. Tripp, vice-president in charge of sales, Pioneer Rubber Mills, 345-353 Sacramento street, San Francisco, California.

The Hawkeye Cord Tire Company of Iowa, 213-227 East Third street, Des Moines, Iowa, was incorporated September 11, 1925, and capitalized at $150,000. The new organization will operate the factory of the former Hawkeye company, and will manufacture Hawkeye oversize cord and balloon tires, as well as inner tubes. Until the first annual meeting the following executives are handling the affairs of the company: John T. Christie, temporary president and treasurer; Burt Springer, temporary vice-president and secretary.

The Lavelle Rubber Co., 320 West Illinois street, Chicago, Illinois, has removed its Milwaukee office to 215 Grand avenue, Wauwatosa, Wisconsin. John B. Freye, vice-president and resident manager, is in charge.

The Rubber Trade on the Pacific Coast

Reports that eastern and mid-western tire makers would advance the price of casings about 20 per cent by December 1 was a source of much gratification to the various tire makers on the Coast, nearly all of whom have been using rubber for which they paid over 85 cents a pound. Needless to say, they were glad when the big concerns gave them a fair excuse for advancing prices to afford at least a fair profit. Although the demand for balloon tires is markedly increasing, sales of high pressure cords are still strong, although dealers expect a very noticeable decline within a few months. A November report, however, by one of the larger tire concerns shows that high pressure cord sales dropped 33⅓ per cent, while balloons had advanced to 50 per cent of total sales. One noticeable trade feature has been the recent activity in the pneumatic bus tire market, which, a consensus of reports shows, has made a 125 per cent gain during the past three months over the preceding six months. The tire factories are making a strong bid for this business, and some are certainly getting a good share.

A peculiar situation is afforded in rubber footwear. Caught a few years ago with an overstock, the small dealers have since been very reluctant about stocking up again. Distributers for the large eastern boot, shoe, and rubber makers say that even a short rainy spell on the Coast would leave the shelves of most retailers perfectly bare and the dealers clamoring in vain for supplies. The dealers, evidently studying simplification and standardization, are taking much interest in the new or "super-stretchy" rubbers, one pair of which may be made to fit several sizes of shoes. Stocking up with but three or four sizes they claim that they have in the new "fit-alls" a sufficient range of rubbers for all ordinary requirements, with a marked saving in inventory. Sport shoes are selling well; but the best trade is in the new bootees and the standard rubber boots used by miners, cement, dairy, and other such workers. Sales of heavy conveyor and transmission belting are reported particularly good in the Northwest; general mechanicals are in better demand at all points; and oil hose and field rubber goods show no let up in sales despite a lowered consumption of gasoline by motorists and some reduction in crude oil production.

The Coast Tire & Rubber Co., Oakland, California, according to Assistant General Manager Roy F. Thompson, has found the demand for its "C-T-C" tires so great that it will have to increase its working schedule to three 8-hour shifts daily after January 1. Equipment for many balloon tires is also being installed.

E. L. Kline, production manager of the Rubber Products Co. of America, Huntington Beach, California, has been spending several weeks in the East buying machinery for the new plant which will reclaim vulcanized rubber under the Cyrus Field Willard patents. Mr. Kline was with the Goodyear Tire & Rubber Co. for many years, and is planning for a large outturn of floor covering material made largely from discarded tire casings.

Seventy dealers attended the recent annual conference, at San Francisco, California, of the Pacific Coast distributers of the India Tire & Rubber Co., Akron, Ohio, J. M. Alderfer, president of the organization, presiding at the various sessions. A number of the southern California dealers motored in a body to San Francisco, first assembling at the offices of Nelson & Price, Inc., 10th and Flower streets, Los Angeles, the largest of the Coast distributers for the India organization.

Gilbert McNeill, who had been assistant manager of the Los Angeles branch of the Firestone Tire & Rubber Co., has been acting branch manager since the death of Elmer S. Firestone. Announcement of a successor to Mr. Firestone was expected from the Akron headquarters by December 1. The southwest business of the Firestone company has been remarkably large this year. The goal was set for $2,500,000 for 1925. The branch went very much over the top in November.

Frank C. Braden, sales manager of the Hamilton Rubber Co., Trenton, New Jersey, has been visiting various cities on the Coast.

W. H. Edwards, an executive of the Keystone Tire & Rubber Co., New York, N. Y., who has been studying coast trade conditions at close range, is very much encouraged with 1926 prospects.

October was reported by President Roy C. Musser as the best month in the history of the Eno Rubber Corporation, Los Angeles, California, and that the working time averages 18 hours daily. Through supply companies, the Eno concern has been shipping a considerable quantity of oil field rubber supplies to Russia, Roumania, and other countries. Business is also brisk in rubber automobile accessories, repair stocks, and mechanical rubber goods for builders.

Production in November at the Goodyear Tire & Rubber Co.'s plant in Los Angeles, California, rose to 7,500 tires and 11,000 inner tubes daily; and the indications were that early in December daily production of casings would reach 8,000. It is to provide for this expansion in production that the million-dollar extension is being made to the factory. At the same time the adjoining Goodyear Textile Mills are being provided with considerable spinning and weaving machinery, and it is believed that before many weeks pass the textile mills will be able to supply most of the fabric needed by the tire plant, as up to now the Goodyear rubber concern has been a large buyer of fabric in the East despite the fact that it has a fabric factory of its own next door.

General Manager L. E. McConnell of the Spreckels "Savage" Tire Co., San Diego, California, reports business as steadily increasing, as attested by the fact that the whole factory force is working night and day. While balloons are the principal sellers, there is still a well-sustained demand for high-pressure cords. Tire production now averages over 1,500 a day.

A second quarterly dividend of 2 per cent has been declared by the directors of the Samson Tire & Rubber Corporation, Compton, California, and it is said that the prospect for maintaining the stock on the 8 per cent annual basis is excellent. The company is doing a large, steadily increasing, and profitable business, and is ably managed.

Economizing on solid truck tires to such an extent that they may harm pavement is not encouraged on the Coast. A truck driver was arrested in Los Angeles recently for having but one-half inch of rubber on one tire and but five-eighths of an inch on another. The California Motor Vehicle Act requires that all vehicles driving on public roads with solid rubber tires must have not less than a full inch of rubber on all four wheels. The driver paid a penalty of $10 for his neglect.

J. B. Magee, southwest branch manager for the United States Rubber Co., with headquarters in Los Angeles, California, has been in Arizona recently, and he reports that a considerable trade in the company's numerous products has been developed there.

America's first trackless train which recently ran from New York to the Pacific Coast scores a new triumph for pneumatic tires. The train was composed of a driving car built on a 3-ton truck to resemble a locomotive and to which was attached a tender and a Pullman-like observation coach. The wheels were shod with United States truck-bus casings, four on the locomotive being 34 by 7, two 32 by 6 singles and two 32 by 6 duals on the coach. Latest reports state that, despite some hard usage, the tires show but few signs of wear.

In the death recently of Elmer S. Firestone at his home in Los Angeles, California, the rubber industry has lost one of its most creditable and likable representatives. In both San Francisco, where up to eight years ago he had looked after the interests of the Firestone company, and in Los Angeles, where he had rendered similar service, he made a most agreeable impression, not only in the rubber trade but in commercial circles generally by his urbanity and friendliness, unswerving honesty in all his dealings, and unfailing loyalty to and belief in his brilliant brother, Harvey S. Firestone, head of the great rubber concern which bears his name.

The Burrows Manufacturing Co. will open a tire boot manufacturing branch at Spokane, Washington, George A. Burrow, president, announces.

Eleven new distributers of Victor-Springfield cord tires have been established in southern California by the Hamilton Rubber Manufacturing Co., Trenton, New Jersey, while new divisions are also steadily being organized in the eastern parts of the United States.

Pacific Coast Golf Tournament

The Pacific Coast Mechanical Rubber Men's Golf Tournament, was held at the Olympic Country Club, San Francisco, California, on October 27, and the following were the winners: Low gross score, qualifying round, E. H. Stevens; low net score, qualifying round, J. B. Lippincott.

Flight	Winner	Defeated Runner Up	Fours
Championship	Geo. S. Lacy	M. S. Sprague	Geo. H. Barmore
2nd flight	Elliott H. Pierce	W. T. Powell	Henry Martine
3rd flight	F. J. Shick	K. E. Johnson	J. J. McDonald

The driving contest was won by Geo. H. Barmore, and the putting contest by H. W. Love.

The Banquet was held at the Olympic Country Club on Tuesday night, October 27, when a permanent organization was formed and the following officers elected for the coming year: president, J. B. Lippincott; Southern California vice-president, George H. Barmore; Northwestern California vice-president, Wm. Edris; secretary-treasurer, Howard Middleton.

Mr. Barmore invited the Association to play its 1926 Golf Tournament at Los Angeles, and undoubtedly it will be held there this coming year.

The Rubber Trade in Canada

Due to the strength of crude rubber, prices on rubber packings have been increased. The present advance is of considerable proportions, and present quotations are as follows: Redstone and Bluestone 70 cents; Aurora or equal, 45 cents.

Following the 5 per cent advance on smaller size tires on October 20, prices were again advanced approximately 20 per cent last month. Prices are now 50 per cent higher on this size than in April of this year. Tubes, which were advanced on October 20, have not been changed to correspond with the further advance of tires.

The stock of tires and tubes of the F. E. Partridge Rubber Co., Ltd., Guelph, Ontario (bankrupt), at its branch in St. John, New Brunswick, Quebec, Montreal, Ottawa, Toronto, London and Windsor, Ontario, is being offered for sale in separate parcels, tenders being received by the trustee, John B. Robertson, F. C. A. of Toronto. The Partridge company's branch at St. John, New Brunswick, is now being operated by the Northern Rubber Co., Ltd.

Urging the importance of a more serious study of the dynamic properties of rubber, in the course of a recent lecture at the London Engineers' Club, London, England, W. B. Wiegand said that he had devised two rubber motors which derived their power from the alternate heating and cooling of rubber appliances. Rubber could be stiffly and rigidly compounded and he predicted that in the future railway trains would run on blocks of rubber instead of on steel rails.

Members of the Dunlop Tire & Rubber Goods Co., Ltd., Toronto, Ontario, office and factory staffs recently enjoyed a social evening when service pins were distributed to those associated with the company for ten, fifteen, and twenty years or more. The presentations were made by E. B. Ryckham, K. C. M. P., president of the company.

The Panther Rubber Co., Ltd., Sherbrooke, Quebec, is running a newspaper campaign featuring Panco soles and heels.

The retail tire dealers of Edmonton, Alberta, have formed an association for the betterment of conditions affecting the retail tire trade in Edmonton.

The Burrows Manufacturing Co. will open a branch factory at Winnipeg, Manitoba, to take care of Western Canada demands for the Burrows tire boot.

Canadian Tire Exports

During the first nine months of 1925 Canada exported 665,566 automobile casings, value $6,783,519; 745,217 inner tubes, value $1,152,000; and 7,650 solid tires, value $166,703. The leading customers were: New Zealand, taking 139,258 casings, value $1,637,530; the United Kingdom, 133,896 casings, value $1,228,591; British South Africa, 46,847, value $456,305; Argentina, 44,614, value $422,100; British India, 28,344, value $294,813; Australia, 29,109, value $293,266; Netherlands, 19,304, value $259,610; Straits Settlements, 28,001, value $238,639; France, 16,680, value $230,860; and Brazil, 31,291, value $212,599.

A. C. S. RUBBER DIVISION OFFICERS

Officers of the Rubber Division of the American Chemical Society elected by letter ballot for 1925-6 are as follows: J. M. Bierer, chairman; R. P. Dinsmore, vice-chairman; A. H. Smith, secretary. Executive Committee: W. E. Glancy, E. A. Van Valkenburgh, W. Scott, W. A. Gibbons, H. L. Trumbull, D. Scott, W. L. Sturtevant, F. W. Fierichs, A. A. Somerville, E. B. Spear, H. A. Fisher.

The following committee, known as the Raw Rubber Specifications Committee has been appointed: C. W. Sanderson, Fisk Rubber Co., chairman; J. P. Coe, United States Rubber Co.; R. P. Dinsmore, Goodyear Tire & Rubber Co.; H. A. Hoffman, B. F. Goodrich Co.; E. A. Van Valkenburgh, Ajax Tire & Rubber Co.

This committee will prepare a specification for governing the purchase of raw rubber. There is, at present, no guidance except the general appearance of the rubber in its original state. The committee is to present at the forthcoming Akron meeting a tentative specification which will comprise the essentials upon which the committee agree up to that time.

ALBA WHITING

Alba Whiting, the well known popular rubber compounding ingredient, was withdrawn from the rubber industry for a time. Now, however, it is being reintroduced for rubber work and in its improved form will be welcomed as an inexpensive filler for general compounding, particularly for mechanicals, molded goods, specialties, etc.

The Rubber Trade in Europe

Great Britain

WITH high prices for crude rubber continuing and consumption increasing, the general public has displayed no lack of interest in market conditions, and shares offered by new companies, proposing the extensive opening up of new rubber lands, are being readily taken, the offerings in some instances being quickly oversubscribed. In discussing the outlook for the rubber industry the *Financial Times* says in part:

The industry is destined to alternate with periods of prosperity and depression. The swing of the pendulum is now upward, and it will continue so until production completely overtakes world requirements. The rate of consumption has, however, steadily climbed until it is now commensurate with supplies. Indeed, the demand for raw rubber has increased far more quickly than experts expected, and the rate of consumption has been persistent for some time past.

Shares admittedly have had a big rise, but we do not consider that the bright prospects for the next few years are yet fully discounted. Profit calculations have been generally based on an average selling price of about 2*s* per pound whereas rubber has been selling above 4*s* for spot and up to 3*s* for 1926. The company reports that have already appeared cover, as a rule, about two months of high prices and ten months of moderate and low quotations. Even on this basis, dividends have, in most instances, been doubled. Interest has been quickened by these dividend announcements, but when those for the full high-priced period are forthcoming a far bigger rush for shares will be seen, and prices may reach extraordinary levels.

Probable Shortage of Crude Rubber

After commenting on the fact that the Stevenson restriction measures have saved the day for the rubber industry, and that the turning point came in November, 1924, when the output was reduced to 50 per cent, the present contrasting conditions are noted:

The fact remains that according to the statistical position, as shown by acres planted, estimated output and estimated consumption, a real shortage of rubber is in prospect in the comparatively near future. It is estimated that in a year or two the productive capacity of the world's rubber plantations, with no restrictive measures, will be no more than between 600,000 and 700,000 tons. On a moderate computation, based on the present rate of consumption, the world's need will be greatly in excess of this amount. During the first seven months of the current year the world's stocks of crude rubber have been reduced by over 60,000 tons, and of this amount 25,000 tons came from London, where the stocks are now down to under 5,000 tons. Early estimates for this year's consumption put the figure as a minimum of 56,000 tons, and this is not allowing for the manufacturers' necessary reserve stocks, which will have to be replenished.

Although there is little doubt that the companies are producing large stocks of rubber ready for the bigger releases under the restriction scheme, it is nevertheless true that only a comparatively small proportion of the Malayan companies are capable of producing more than about 85 per cent. of their standard 100 per cent. allowance. This is partly due to labor shortage, partly to the intermittent system of tapping now adopted, and partly to estates having been neglected, but little new planting being done during the long period of depression.

Rubber Industry Reviewed by H. Eric Miller

At the recent annual meeting of Harrisons and Crosfield, Ltd., H. Eric Miller presiding said in part:

The absorption of crude rubber during the current year will be about 560,000 tons, of which 400,000 tons will be used in the United States and 160,000 tons in other countries. The absorption of crude rubber by the rest of the world during 1925 will be about 25,000 tons more than in 1924, the most noteworthy increase being that of Germany, whose absorption has increased from 22,000 tons in 1924 to over 40,000 tons during the current year. In no manufacturing country, with the exception of Japan, has the absorption decreased, and, as in the case of the United States, the increased absorption is mainly accounted for by the increasing use of motor transport.

Production in 1926

It is difficult at this stage to estimate, with any degree of accuracy, what the production during 1926 is likely to be. The labor question has a distinct bearing on this, and, although there is no doubt that all the labor necessary for production of full normal crops will be arranged for in the course of next year, it is doubtful whether a full complement of trained labor is actually available at the present time to secure full crops in the last quarter of the year, when the trees give their maximum yield. In view of the seasonal nature of the tire trade, I do not look for any material increase in the free stocks of crude rubber until about the middle of next year, by which time the production of rubber will be at full capacity. It is to be anticipated, however, that producers generally will refrain from indulging in the too drastic system of tapping which was in vogue prior to the slump, and that greater regard will be paid to the maintenance of adequate bark reserves, a matter which is of the utmost importance when taking into consideration the potential normal increase in the world's requirements.

Plantation Extensions

In the meantime the well-organized and proven plantations in the East are quietly but definitely adding extensions to their present planted areas, using first-class planting material, and I am sure that these extensions will prove to be a very sound investment. British predominance has not diminished in any sense as a result of the legislation regulating exports from Malaya and Ceylon, and all my inquiries convince me, as I have repeatedly stated during recent years, that the estates which have been restricting exports under legislation or voluntarily are in excellent condition to derive the maximum benefit from the period of prosperity which may be looked for during the next few years.

Rubber Share Boom Continues

There has again been fresh activity in the rubber share market, following somewhat quieter conditions during the early part of the month. Traders are said to fear that the overdue American demand for rubber will carry the price over 5*s* a pound, while it is also understood that tire requirements this winter will exceed all previous records. Even should the present restriction on output be entirely removed, it is believed that production will show no rapid expansion.

The observant foreigner must be rather puzzled when he reads in one column of our newspapers that the country is on the verge of bankruptcy and in another column that about five millions of fresh capital has been poured into new rubber issues of all sorts and conditions. There has been apparently little discrimination shown in the choice or nature of these investments. The magic word "Rubber" on the prospectus has sufficed. How or when the profits are to be earned upon all this accretion of new money in the plantation industry seems to have been left to later reflection. The aspect that impresses us most at the moment, however, is that all this concentration of capital has been upon the production side of rubber. One looks in vain through a long list of issues for a single instance of a new rubber manufacturing concern seeking public support. The consuming side is not represented in this orgy of speculation, yet the dependence of the plantation interests upon the expansion of the rubber goods trade does not need to be emphasized. Unless the consumption of the raw material increases in proportion to the larger production, the price of rubber will drop once more to an unremunerative level and drastic limitation of exports be again resorted to as a palliative.

Institution of the Rubber Industry

A large number of men prominent in the rubber industry attended the smoking concert given October 27 at the Cannon Street Hotel, London, by the Institution of the Rubber Industry. D. F. L. Zorn presided, and in the course of the evening referred to the good work already accomplished by the organization, at the

same time urging the members to continue helping toward the attainment of the Institution's chief object—"the promotion of a better understanding and a closer relationship between all sides of the rubber industry."

On October 15 the Birmingham and District Section held its first meeting at the Grand Hotel, Birmingham, D. G. Snodgrass, of the Dunlop Rubber Co., presiding. There was a large attendance, and a number of diplomas representing fellowship and associateship with the Institution were presented. Discussion followed the reading of the following papers: "A Note on Gas Black for Rubber Manufacture," by G. Gallie; "Tensiles of Cold Cured Rubber," by A. Zeitlin; and "Notes on Developments in Preparation of Raw Rubber," by W. S. Davey.

The Scottish Section held a meeting on October 23 in the Central Hotel, Glasgow, when Dr. Philip Schidrowitz read a paper on "The Vulcanization of Rubber Latex and its Commercial Application." W. A. Williams, the works manager of the North British Rubber Co., Ltd., Edinburgh, presided.

More than twenty members of the Institution visited on October 9 the rubber research laboratories in Delft, Holland, following the invitation of Dr. A. Van Rossem. In making explanations regarding the various laboratory exhibits Dr. Van Rossem pointed out that the work in general was carried forward for the three sides of a great industry—the producing side, which resulted in a close cooperation with the Propaganda Department of the International Association for Rubber Cultivation in the Netherlands East Indies; for the rubber manufacturers of Holland; and for the consumers of rubber articles, testing analyses, etc.

European Notes

The Sumatra Anglo-Dutch Estates, Ltd., has adopted an agreement with the Anglo-Dutch Plantations of Java to carry on the business of rubber planters, etc. The estates cover 212,014 acres of which 68,678 acres were under cultivation on December 31 last.

The following producing companies propose paying unusually large dividends: Pullangode Rubber Estate, 30 per cent, an increase of 24 per cent as compared with last year; Anglo-Sumatra Rubber Co., Ltd., 35 per cent; Bajoe Kidoel Rubber & Produce, 25 per cent; Bandar Sumatra Rubber Co., Ltd., 20 per cent (less tax); Sungei Buaya (Sumatra) Rubber Co., 20 per cent. Many other companies are declaring interim dividends of 12½ per cent.

The final number of the *Bulletin de l'Association des Planteurs* has just come to hand. At a meeting of April 28, 1925, it was decided to dissolve the association and discontinue publication of the bulletin. The association was formed in 1908 to keep planters informed and to make propaganda for plantation rubber. Up to 1914 this task was perfectly carried out and the association took an important part in the rubber expositions held in 1910 at Brussels, in 1911 and 1913 in London, and in 1914 at Ghent. The world war interrupted its activities, and meantime it became evident that the financial condition of the association and the development of organizations in other rubber centers made it both undesirable and unnecessary to continue in existence. The fine rubber museum at Brussels remains as a testimony of the activities of the association.

The Société Industrielle du Caoutchouc Regenéré has been formed to buy, sell and treat rubber waste and to manufacture regenerated rubber. Headquarters are at 9, rue d'Aguesseau, Paris. The capital is 4,000,000 francs.

The Société Anonyme des Procédés Marmier will exploit a new process of reclaiming rubber and cotton from old tires and other waste rubber. The company, which has offices at 1, rue Benit, Nancy, is capitalized at 600,000 francs.

It is reported on reliable authority that a new rubber reclaiming plant is about to be established in Liverpool, England, with an initial capacity of 10 tons of reclaims per day.

Germany

German manufacturers of rubber balloons have a grievance. Now when general business is slack, advertising is doubly necessary and one of the means widely adopted to attract customers is giving away rubber balloons, generally bearing the name of the distributing firm. This is particularly gratifying to rubber firms for the demand for balloons is good. But now the police department finds the gas-filled balloons dangerous as prejudicial to health and likely to cause fires, and has forbidden the filling, storing and free distribution of these articles.

Synthetic Rubber and Other Rumors

The slackness of business combined with high crude rubber prices calls forth a strong desire for ways out of depression into prosperity that fathers pretty fantasies about synthetic rubber, for example. If reports are to be believed there are several firms that have succesfully made good rubber out of potatoes in any quantity demanded and at surprisingly low prices. However, so far neither samples nor quotations could be obtained from the firms in question. And the factory which rumor said was to be established in Hannover seems to be nothing but a chimera. So the day of the return of cheap rubber has been put off again, and the problems of the business world in the rubber industry cannot as yet be solved by non-existent synthetic rubber.

Another rumor which is lovingly fostered in certain quarters is that an American commission is on its way to make big contracts with firms in Austria and Germany for supplying rubber goods, particularly surgical rubber goods and, of course, automobile tires, seeing that German and Austrian firms can supply so much more cheaply owing to low wages. Besides this, Americans are buying largely in Germany and Austria already, it is claimed.

German Company News

The Hansa-Bund for Trades, Industry and Commerce has requested the Minister of Finances to ease the burden of taxation Germany is now laboring under.

Manufacturers have handed in a protest in connection with government measures against the Kartels. It had been agreed between government and manufacturers to await the results of measures taken by the latter themselves before the government would intervene. Manufacturers see a certain danger for business in the action of the government.

Workers in the rubber industry in Saxony succeeded in obtaining an increase in wages amounting to 11 per cent after a 10-day strike, this in spite of the none too brilliant condition of the trade. In Hannover and Harburg many workers had to be laid off and for the Fulda district, too, reports are unfavorable.

Germany exported 105,069 quintals of rubber manufactures, valued at 59,818,000 marks during the eight months ended August, 1925, as compared with 99,812 quintals, value 46,560,000 marks for the same period of 1924. Her imports came to 13,939 quintals, value 8,581,000 marks, against 4,510 quintals valued at 2,582,000 marks, in the 1925 and 1924 periods, respectively. The considerable increase in imports against the very slight increase in exports is noteworthy.

Flags and pennants of rubberized fabric for canoes and collapsible boats are gaining in popularity. They are easily cleaned, therefore always look fresh and are more durable than those made of ordinary materials. Small rubberized flags have also been successfully used to mark roads in the mountains and plains, both in winter and summer. In the Riesengebirge and the Thuringian forest such guides of colored rubberized fabrics were attached to trees and posts and were found to be both conspicuous and durable.

The Rubber Trade in the Far East

Malaya

Future Rubber Supply

LOCAL papers continue to call attention to the importance of the labor situation in connection with the increased releases of rubber. The *Straits Times* is of opinion that producers, after the experience of last year when prices fell to a level very close to the worst prevailing before restriction, will proceed slowly and cautiously to add to their labor force. Recruiting labor is a costly matter and planters will reason that if they spend money in bringing coolies over and prices suddenly drop they will be badly hit. Whereas if predictions of a shortage come true, they will do well enough on their present basis of output. In other words it is not to be assumed that the increase in the percentage of exportable rubber will be immediately followed by larger supplies coming on the market.

This authority figures that possible production in Malaya is about 20 per cent above standard production and that 75 per cent of that is the most that can be expected with prudent tapping. That would give 237,000 tons, for the next year or two, so that an estimate that Malaya and Ceylon will yield as much as 341,000 tons in 1926 is considered too high by 40,000 to 50,000 tons. Provision for the future, therefore, is imperative. One of the world's greatest needs is an adequate supply of rubber at a reasonable price and statesmen should give the matter a good deal more attention than is the case at present. A round table conference of men like Mr. Hoover, Lord Stevenson and Sir George Maxwell to discuss the matter, giving equal care to the interests of producers and consumers, is suggested.

In conclusion, the *Straits Times* says: " . . . . the higher grade journals (American), which command the pens of men who possess knowledge and a sense of fair play, write on the subject with a frankness and generosity which excites our admiration. These seem to show that there is a basis on which the producer and the consumer could meet, or perhaps even better, that there would be value in the exchange of views between men who are not biased on one side or the other but who do recognize that the world must have rubber and plenty of it if it is to carry on its work efficiently and that the real problem is to discover how best to supply the world's wants."

The *Malayan Tin and Rubber Journal* discusses the labor matter from a different angle. It wishes to inject into optimists a healthy amount of doubt regarding the labor situation as it will affect wages and consequently costs. There is not only a real demand for extra labor on estates, but also in the mines. There is almost abnormal activity in tin mining in Malaya and this, coupled with the sudden rise in rubber, has taken up practically all the available forces of Chinese labor. The Chinese have not been slow to demand higher wages and these have had to be granted owing to competition for labor.

In other industries, too, demands for increases in pay are being made. The steady rise in the prices of necessities does not tend to mitigate the situation and there is a possibility that a higher wage standard may have to be a permanent item in all future estimates of production costs.

Rubber Propaganda

Major Knox, late rubber propagandist, in an interview with a local press representative, remarked that owing to the changed conditions due to the rise in rubber he had suggested the launching of a scheme in Australasia where very valuable support had been promised from commercial interests. But the government decided that as the funds had been voted for eastern propaganda, they could not be used for Australia. This was unfortunate, Major Knox declared, as next to America, Australia and New Zealand consume more rubber per head of the population than any other country.

In view of the above, the Secretary of the Propaganda Committee was asked whether the committee was to be dissolved and propaganda in Malaya cease. The reply was that the committee would continue its activities and follow up and continue the work begun especially in connection with the use of rubber in mining. A technical sub-committee has recently been appointed to advise the Executive Committee on developments and the use of rubber for anti-impact purposes in machinery. In the opinion of the secretary the use of rubber as a resistant to abrasive action in machinery will not be affected by the recent increase in prices to the same extent as new uses in other directions.

Tapping Experiments

A number of estates supplied data to the Department of Agriculture regarding tapping experiments. From results obtained by six estates it appeared that yields fall off around February, when the influence of wintering begins to be felt, and according to one estate, the decrease may be as high as 50 per cent. The effect of the hour of tapping on yields as experienced by five estates was a marked decrease in crop, variously found to run from 25 to 50 per cent of normal, when tapping was undertaken late in the morning or in the afternoon. Alternate daily tapping with a longer cut was found to give up to 95 per cent of the crop obtained by daily tapping with a shorter cut. Improved health of the trees, reduction in tapping costs were the advantages of the system. Findings concerning periodical tapping as compared with alternate daily tapping were conflicting.

The yield from a single cut daily was 98.69 per cent of that obtained from a double cut daily. Bark renewal with two cuts was very poor.

Malayan Statistics

The statistics for rubber imports and exports as summarized by the *Straits Times* read as follows:

	NINE MONTHS ENDED SEPTEMBER	
	1925 Tons	1924 Tons
Total exports	226,604	192,742
Less gross imports	114,167	76,024
Nominal Malayan	112,437	116,718

From the imports described as native rubber 25 per cent has to be deducted so that the figures under the head imports should be as follows:

	NINE MONTHS ENDED SEPTEMBER	
	1925 Tons	1924 Tons
Estate rubber	19,147	15,536
Native, dry	71,263	47,158
	90,410	62,694

The increase of imports, dry, for 1925 was 27,716 tons of which 24,105 tons were native rubber.

Net Malayan imports are calculated as below:

	NINE MONTHS ENDED SEPTEMBER	
	1925 Tons	1924 Tons
Total exports	226,604	192,742
Less net imports	90,410	62,694
Net Malayan	136,194	130,048

During the current restriction year the native rubber imports have been:

	Tons		Tons
November	7,718	May	10,665
December	9,298	June	11,929
January	7,576	July	13,511
February	8,140	August	10,175
March	10,961	September	10,637
April	9,704		

August exports of declared uncouponed stocks, on payment of 42 cents per pound export duty, totaled 1,830 tons, of which 1,802 tons came from the Federated Malay States and the balance from Kedah.

Netherlands East Indies

The estates of the Si Boelan and Soeka Radja companies, East Coast Sumatra, have been sold to an English syndicate for over 10,000,000 guilders. These estates formed part of the assets of the Deli Bank, the liquidation of which has been undertaken by the Javasche Bank, which held the preferential shares of the two concerns.

The property sold comprises 13 estates covering an area of 48,000 acres, of which 16,000 acres are planted to rubber. The purchasers work under the name Allied Sumatra Plantations, Limited, with a capital of £1,400,000. Harrisons & Crosfield are agents and secretaries, while the bankers are Lloyds Bank and Chartered Bank. It is planned to plant up a further 21,000 acres with rubber, when the company will be capitalized at £67 per acre. The 1926 crop is estimated at 3,000,000 pounds, and half of this has already been sold forward.

In certain quarters the acquisition of these estates by British capital is welcomed as to a certain extent balancing the growing importance of the Netherlands-Indies producers, which has been one of the unfavorable results of the restriction scheme.

The question how Dutch capital happened to be overlooked in such an important transaction has come in for a good deal of discussion. It seems that while the Javasche Bank was willing enough to cooperate to the end that this extensive property should pass into Dutch hands, it could settle no negotiation without the vote of the ordinary shareholders as it held only the preferential shares.

The Javasche Bank had repeatedly declared that it could only be interested in an immediate bid for the preferential stock or in a firm offer for all the shares. But Dutch capitalists held back and the opportunity passed to the English.

Netherlands Gutta Percha Co.

From the report for 1924 it is learned that although conditions in the Dutch East Indies improved, the effect on the Netherlands Gutta Percha Co.'s factory at Singapore was but slight. The prices obtained for the company's manufactures showed little or no gain over those obtained the previous year although, on the other hand, sales were increased. The concern has come to an agreement with the N. V. Hollandsche Overman Banden Mij, Amsterdam, whereby it has the sole right to manufacture and sell Overman tires in Eastern Asia, Netherlands East Indies and Australia. The cable factory, construction of which had been started at Sepandjang, near Soerabaia, Java, remains unfinished. It is intended to make proposals regarding reorganization shortly.

Plantation Rubber Scrap

At a meeting of the Soeka-boemi Rubber Planters Association, one of those present related that he had obtained good results from sending loose scraps to the open market in London. He received only about 2 cents per pound less than for worked scraps. He had been shipping his scrap for 1½ years and had always secured good prices for it. It seems that even earthy rubber is in the lot and that there is quite a quantity of dirt and moisture in this rubber as it undergoes but little drying or washing, so that the percentage of pure rubber is much smaller than if the scrap had undergone the usual treatment. It was pointed out that while at present the difference was only 2 cents per pound, it would easily become 10 cents if all planters shipped unworked scraps.

Netherlands East Indies Notes

At the above meeting another planter stated that he was at present busy digging up 3,000 kilos of rubber buried in 1921 and 1922 because he had been unable to sell it. He found that a portion consisting of unworked crêpe was perfect, while that which had been through the mangle was useless.

The Rubbertrust Corporation, Arizona, has just been formed in Amsterdam, Holland, to exploit rubber plantations.

In the *Archeef voor de Rubbercultuur* of October, 1925, Dr. R. Riehl describes a circular saw for cutting in pieces coagulum intended for crêpe. The pieces of coagulum are frequently so large as to necessitate their being torn up by hand or cut with a knife before being put through the macerator.

Ceylon

After a long discussion in the Legislative Council, the following motion was carried: That in view of the Secretary of State sanctioning a maximum flat rate of 500 pounds per acre of rubber in Malaya as from August 1, 1925, this council requests government to take immediate steps to obtain the sanction of the Secretary of State for a similar flat rate in Ceylon for all rubber estates that are now assessed on a flat rate of 320 pounds per acre.

In replying to the mover of the motion, the Colonial Secretary said that in Ceylon the maximum flat rate for estates that could produce no records of pre-restriction yields was 320 pounds per acre. In Malaya the maximum flat rate for such estates was 300 pounds. No maximum is imposed on Ceylon estates able to prove that they could produce more than 320 pounds, while in Malaya estates able to produce figures showing larger crops than 300 pounds per acre had been allowed a maximum of 400 pounds which recently had been raised to 500 pounds.

Again, this increase had affected only 212 estates out of a total of 1,411 allowed 400 pounds, and the annual increase in shipments was estimated at only 2,400 tons.

On the other hand, in Ceylon there are 4,000 estates assessed at or under 320 pounds, and practically all would apply for increases if this were allowed. Since these estates had no figures to prove crops, they would have to be individually assessed and the cost in time and money would be considerable, so that if any concessions were allowed it would have to be by automatically increasing the flat rate of 320 pounds without assessments. The result of such an increase would be an exportable increase of over 22,000 tons per annum. It was said that these were paper figures as they could not actually be realized, but the mere prospect of such an increase would have a very serious effect on the market. The motion was put to the vote and carried by 29 to 12.

UGANDA

According to the report of the Director of Agriculture, Uganda, for 1924, the higher prices have revived rubber exploitation here and tapping could be carried on steadily during the year. Exports amounted to 608,300 pounds valued at £18,911 compared with 398,600 pounds valued at £9,926 in 1923. It is estimated that some 10,000 acres are under rubber on plantations. The mycologist reports that Pará rubber in Uganda remains remarkably free from fungus disease.

MADAGASCAR

It is interesting to note from a recent issue of *Le Caoutchouc & la Gutta Percha* that in the month of June, 1925, 226 kilos of rubber, valued at 565 francs left the port Fort-Dauphin for London.

Rubber Patents, Trade Marks and Designs

The United States

October 6, 1925*

1,555,928 Cushion for radio headpieces. Timothy F. Morrissey, New York, N. Y.

1,556,095 Joint for dolls. Otto Gans, Waltershausen, Germany.

1,556,156 Cushion wheel. Franz H. Nierman, Jefferson City, Missouri.

1,556,167 Footwear. Pearl Y. Smiley, Kitchener, Ontario, Canada.

1,556,181 Water feed for dental instruments with collapsible pipe. Chester Tyree, London, Kentucky.

1,556,289 Billiard table cushion. Frederick Ling, assignor to Thurston & Co., Limited, both of London, England.

1,556,290 Nonskid vehicle wheel. John McMullen, Butte, Montana.

1,556,298 Brush having vulcanized ends. Peter J. Morck, San Francisco, California.

1,556,328 Water gate with flexible water-impervious sheet attached. Edward Hutchins, assignor to International Paper Co., both of New York, N. Y.

1,556,339 Safety swimming belt. August, Peter and Joseph Marengo. Stockton, California.

1,556,356 Toy balloon. Albert Russo, Pittston, Pennsylvania.

1,556,397 Air-supply tower. Rollin L. Bacher, Cleveland Heights, assignor to The United States Air Compressor Co., Cleveland, both in Ohio.

1,556,450 Combination wheel. Joseph Makant, West Haverstraw, New York.

1,556,518 Pen-filling device. James Gillies, Fort Scott, Kansas.

1,556,542 Tire alarm. Norman Phillips and Archibald J. Martin, Salem, Ohio.

1,556,559 Milking-machine teat cup. Henry Enovald Kjestrup, Rangitumau, New Zealand.

October 13, 1925*

1,556,744 Soft rubber applicator. Benjamin Ansehl, assignor of one-half to Anthony J. Gutweiler, both of St. Louis, Missouri.

1,556,781 Elastic grip. Thomas Emil Gjorup, assignor of one-half to Louis Hansen, both of Chicago, Illinois.

1,556,792 Elastic phone headband. Thomas Linforth Jones, deceased. James Simpson Jones, executor, London, England, assignor to John MacDougall, Prestwick, Scotland.

1,556,849 Tire protector. Theodore H. Kruse, Arvada, Colorado.

1,556,966 Protective cushion tip. Frank Selig, Cleveland, Ohio.

1,556,967 Garter. John Siggelkow, New Castle, New York.

1,557,049 Buoyant antenna. John Hays Hammond, Jr., Gloucester, Massachusetts.

1,557,122 Inner tube. Anthony Volence, Browerville, Minnesota.

1,557,219 Rubber shackle. Fabio Sergardi, assignor to General Motors Research Corporation, both of Dayton, Ohio.

1,557,297 Comb display device. John L. Little, Brooklyn, assignor to The Vulcanized Rubber Co., Inc., New York, both in New York.

1,557,324 Cushion tire. Samuel Pestunowitz, Newark, New Jersey.

1,557,357 Fountain pen. Herbert Gornell, Twickenham, England.

1,557,538 Gun recoil device. Walter R. Jorgenson, assignor to Jostam Manufacturing Co., both of Chicago, Illinois.

October 20, 1925*

1,557,564 Rubber heel. Nunzio Daquino, Akron, Ohio.

1,557,620 Eye cup with syringe bulb. Henry Robinson, Waco, Texas.

1,557,681 Trouser shield. Henry A. Funk, St. Louis, Missouri.

1,557,947 Arch support and heel cushion. Benjamin Stewart, Des Moines, Iowa.

1,557,972 Cushion tire. Rolla B. Bostwick, Duquesne, Pennsylvania.

1,557,984 Tire tread. Jackson D. Comstock, Chester, West Virginia.

1,558,025 Valve attachment for dual tires. Herbert V. Ludwick, assignor by mesne assignments, to Budd Wheel Co., both of Philadelphia, Pennsylvania.

1,558,191 Resilient earpiece. Bruno Lindemann, Hamburg, Germany.

1,558,200 Aquatic doll. Albert E. Murphy, Chicago, Illinois.

1,558,263 Fountain pen. Frank J. Grommes, Aurora, Illinois.

1,558,332 Cushioning fender for vehicle. Henry H. Basch, New York, N. Y.

1,558,384 Battery box. John B. Mattson, Boston, assignor to Hood Rubber Co., Watertown, both in Massachusetts.

October 27, 1925*

1,558,455 Tire with cushion core. Arthur E. Bauman, Akron, Ohio.

1,558,503 Hose connection for automobile engines and radiators. John G. Pressler, Chicago, Illinois.

1,558,507 Tennis racket. Ambrose Ryder, New York, N. Y.

1,558,660 Pressure gage and valve cap. Joseph E. Wood, assignor to W. Lee Provol, both of Chicago, Illinois.

1,558,681 Vehicle cushion connection. August H. Leipert and Gustavus Haag, assignors to International Motor Co., all of New York, N. Y.

1,558,759 Weather guard. Edward Edward Richardson, Maumee, assignor of fifty-one per cent to F. O. Richey, Elyria, both in Ohio.

1,558,760 Rubber mat. Edward Edward Richardson, Maumee, assignor of fifty-one one-hundredths per cent to F. O. Richey, Elyria, both in Ohio.

1,558,814 Elastic parachute toy. William E. Kastead, St. Petersburg, Florida.

1,558,850 Rubber heel. William G. Eaton, Hull, Massachusetts.

1,558,877 Elastic telephone receiver attachment. Harry T. Hipwell, Pittsburgh, Pennsylvania.

1,558,930 Fountain glove. Harold P. Schuck, East Orange, New Jersey.

1,558,950 Corset. Rosanna Du Fora Ulman, assignor to International Corset Co., both of Aurora, Illinois.

1,559,059 Life preserver. William E. Abbott, Pasadena, assignor of one-fourth each to Dennison F. Rease and R. H. Caldwell, and one-eighth to Logan Smith, all of Santa Cruz, California.

1,559,114 Rubber glove. Clarence H. Maranville, Akron, Ohio.

1,559,270 Bather's purse. Harry Miller, Cleveland, Ohio.

1,559,310 Elastic hub shock absorber. Georges Broulhiet, St. Etienne, France.

1,559,364 Inflatable ball. Dewey O. Pearce, Boise, Idaho.

1,559,382 Heel lift. William J. Tempkins, Mount Vernon, New York.

1,559,450 Sole. Laurence M. Oakley, assignor to Essex Rubber Co., both of Trenton, New Jersey.

1,559,470 Garden hose coiling device. Jonathan P. Stewart, Alhambra, California.

November 3, 1925*

1,559,664 Blow-out boot. John A. Barnes, assignor to Fowler Co., Inc., both of Dallas, Texas.

1,559,740 Elastic nursing bottle holder. Philip Cardarella, Kansas City, Missouri.

1,559,887 Tire valve. Henry F. Kraft, Ridgewood, New Jersey, deceased. Edgar J. Phillips and Earl A. Darr, executors.

1,559,953 Elastic paddle ball. Thomas H Furman, Los Angeles, California.

1,559,968 Fountain pen. John J. Kleschka, Waterbury, Connecticut.

1,560,026 Rubber ball game. Vincent C. Dickson, Seattle, Washington.

1,560,061 Self-filling fountain pen. Herbert W. Kish, Chicago, Illinois.

1,560,073 Inflatable ring for hat protector. Mario Bontempi and Joseph De Leo, Bronx, New York.

1,560,097 Rubber weather strip. Otto H. Petersen, Oakland, California.

1,560,124 Overshoe. Kathryn F. Volkey, Seattle, Washington.

1,560,139 Rubber covered apparatus for winding cinematograph films. John Roger Bow, Melbourne, Victoria, Australia.

1,560,156 Cushioned wheel. James Gair and Watkin Salusbury Williams, both of London, and Edwin Jones, Liverpool, England.

1,560,172 Battery container encased in rubber compound. Rufus N. Chamberlain, Chicago, Illinois, assignor to Gould Storage Battery Co., Inc., New York, N. Y.

1,560,174 Rubber block. Lucien Gaisman, Hocleyhill, near Manchester, England.

1,560,185 Pneumatic motor wheel. Jaquelin M. Meredith, Norfolk, Virginia.

1,560,222 Combination wheel and puncture proof tire. Samuel Eliot, Manchester, Massachusetts.

1,560,233 Auxiliary wheel tread. Stanley P. Hickey, Coldspring, Wisconsin.

1,560,302 Game with elastic connection. Alfred M. Palmer, Troy, New York.

1,560,407 Rubber stencil. Louis H. Carufel, Bismarck, North Dakota.

1,560,463 Air bag. Richard S. Burdette, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,560,485 Automatic fountain pen. Ernst Richard Gustav Albert Rosler, assignor to Simplo Fullfeder-Gesellschaft Voss, Lausen & Dziambor, all of Hamburg, Germany.

1,560,498 Tire flap. Thomas A. Beaney, Poughkeepsie, assignor to Beaney Rubber Co., Inc., New York, both in New York.

*Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

The Dominion of Canada

October 6, 1925

254,260 Rubber block suspension for automobiles. Walter Lawson Adams, New Haven, Connecticut, U. S. A.

254,271 Footwear. Leon Bassett Conant, Cambridge, Massachusetts, U. S. A.

254,309 Surgical corset. Ebenezer Randolphus Jenyns, Brisbane, Queensland, Australia.

254,314 Cushion wheel. Frank Lauhoff, Detroit, Michigan, U. S. A.

254,336 Cushion arch support. John D. Palm, Brockton, Massachusetts, U. S. A.

254,362 Wheel with rubber shoe. John Albert Vandenberg, East Lynn, Massachusetts, U. S. A.

Chemical patents will be found on page 144. Machinery and Process Patents on pages 147-148

254,439 Storage battery and electrode employing soft rubber sheets. The Prest-O-Lite Co. of Canada, Limited, Toronto, Ontario, assignee of Thomas Spencer, Indianapolis, Indiana, U. S. A.

October 13, 1925

254,535 Pneumatic tires. Edward Brice Killen, London, E. C. 4, England.

October 20, 1925

254,792 Rubber shoe. Arthur A. Wilson, Chicago, Illinois, U. S. A.

254,821 Rubber door check appliance. The B. F. Goodrich Co., New York, N. Y., assignee of Robert M. Pierson, Akron, Ohio, both in U. S. A.

254,857 Rubber spring suspensions for vehicles. The Rubber Shock Insulator Co., Inc., assignee of Fred L. Lipcot, both of New York, N. Y., U. S. A.

October 27, 1925

254,943 Vacuum massage cup. Adele Millar, San Francisco, California. U. S. A.

254,992 Rubber automobile bumper. The C. G. Spring & Bumper Co., Detroit, assignee of Christian Girl, Kalamazoo, both in Michigan, U. S. A.

255,001 Elastic hat adjuster and retainer. The Hold Tight Hat Adjuster, Inc., assignee of Jacob Rubenstein, both of New York, N. Y., U. S. A.

255,008 Garment of elastic webbing. The Nature's Rival Co., assignee of Clarence Mayer, both of Chicago, Illinois, U. S. A.

November 3, 1925

255,068 Air inflated swimming device. George Evans, Redondo Beach, California, U. S. A.

255,118 Garter. Alfred M. Ziegler, Newton, Massachusetts, U. S. A.

255,206 Fountain pen. William J. Michel, assignee of Security Pen Corporation, assignee of John H. Kritikson, all of Chicago, Illinois, U. S. A.

The United Kingdom

September 30, 1925

238,005 Husking machine employing rubber endless band. R. F. Macfarlane, Imperial Biscuit Works, Fulham, London.

238,006 Mats and cushions. C. H. Ellis, C. W. Cave, H. Taylor, and L. Rarmall, all of 56, Gresham street, London.

238,012 Billiard cue trimmers. H. Swann, 65, Pixmore avenue, Letchworth, Hertfordshire.

238,024 Rubber covered heating resistances. R. Grierson and Grierson, Ltd., both of 43, Bloomsbury Square, London.

238,038 Surgical appliances. I. J. Frankenstein, 5 Kaiser-Wilhelmplatz, Schöneberg, Berlin.

238,041 Elastic horseshoe member. F. G. Hasler, Ty Cóch, Trefnant, Denbighshire.

238,086 Window silencer. E. A. Bellow, 11, Albany road, St. Leonards-on-Sea, Sussex.

238,091 Inflatable boot trees. Gimson Shoe Machinery Co., Ltd., I. L. Read and H. Robottom, Ulverscroft Works, Ulverscroft road, Leicester.

238,110 Reservoir pens. E. R. A. G. Rosler, 75 Schanzenstrasse, Hamburg, Germany.

238,115 Nonmetallic cushion connections. O. Y. Imray, 30, Southampton Buildings, London (International Motor Co., 25 Broadway, New York, N. Y., U. S. A.)

238,122 Hose couplings with rubber liner. Belliss & Morcom, Ltd., Ledsam street Works, and G. P. Edwards, 109, Ridgeway, Edgbaston, both in Birmingham.

238,131 Vehicle signal employing rubber. J. T. Parsons, 37, Wellington Place, Belfast.

238,134 Heel. V. Buckland, 68, Windmill Road, West Croydon, Surrey.

238,244 Tire pressure gage washer. Schrader's Sons, Inc., 470 Vanderbilt avenue, assignee of J. Wahl, 114 Euclid avenue, both of Brooklyn, New York, U. S. A.*

October 7, 1925

238,280 Knee grip for motorcycles. Stevens & Co. (1914), Ltd., and A. J. Stevens, both of Graiseley House, Wolverhampton.

238,286 Inking roller. A. B. Davis, 1130, North Limestone street, Springfield, Ohio, U. S. A.

238,288 Tubes for ink bottles. G. Dunkerley, 123, Dulwich road, Herne Hill, and Mabie, Todd & Co., Ltd., 133, Oxford street, both in London.

238,311 Vulcanite or rubber slipper brake for motors. G. W. Render, Brooklyn House, Gaythorpe, Lowdham, and W. W. Bagguley, Hoveringham, both in Nottinghamshire, and O. Henson, 80, Mitchell street, Nottingham.

238,393 Pneumatic saddle cover with inflatable tube. M. Johnston, The Neuk, Silverdale road, Eastbourne, Sussex.

238,401 Key holder with rubber extensible member. A. G. Hopkins, 1, Summer Place, Kidderminster.

238,405 Paving slabs. R. F. Herrick, Winchester, Massachusetts, U. S. A.

238,417 Rubber tube rafts. F. Scheibert, 21, Kolonie, Lübben, Lausitz, Germany.

238,450 Rubber cushioned vehicle. H. Wade, 111, Hatton Garden, London (Murray Products Co., Cleveland, Ohio, U. S. A.).

238,455 Rubber life saving device. A. B. Gibson, 66, West End Park street, Glasgow.

238,539 Annular tire. L. P. C. Lotte, 57 Boulevard Pereire, Paris.*

238,557 Catamenial appliances. E. K. Epstein, 31 Fregestrasse, Steglitz, Berlin.*

238,561 Rubber shoes, Respro, Inc., assignee of H. H. Smith, both of Cranston, Rhode Island, U. S. A.*

October 14, 1925

238,563 Toy boat with rubber bladder. A. Friederichs, 49 Hofweg, Hamburg, Germany.*

238,591 Tire cover. J. R. Bloomfield, 36, Denzil road, C. E. P. Hughes, 97, High street, W. Taylor, 23, Testard road and T. Hammond, Guildford Park road, all in Guildford, Surrey.

238,599 Golf tee with rubber head. C. W. Read, Stanton Tube & Tyre Works, Conington road, Lewisham, London.

238,628 Catamenial support. A. Wilson, 2, Cypress Gardens, and W. A. Skee, 4, Bridge street, both in Blyth, Northumberland.

238,629 Rubber corsets. H. W. Randall, 76, Mortimer street, London.

238,669 Ebonite tuning coil holder. Fuller's United Electric Works, Ltd., Woodland Works, Grove road, Chadwell Heath, and A. P. Welch, 33, Eastwood road, Goodmayes, both in Essex.

238,682 Ebonite lighting arrester. W. C. Butler and R. W. Angel, 3, Verulam street, St. Albans, Hertfordshire.

238,745 Rubber covered collision guard. H. Meynell, 36, Avenue Parade, Accrington, Lancashire.

238,746 Flesh reducing garments. F. A. S. Gwatkin, 31, Basinghall street, London (Kleinert Rubber Co., 485 Fifth avenue, New York, N. Y., U. S. A.).

238,747 Rubber faced bumper. J. G. Connolly, 57, Wharfdale road, King's Cross, London.

238,751 Wash cloth with elastic straps. J. T. Elwell, 1256 Newkirk street, Philadelphia, Pennsylvania, U. S. A.

238,798 Rubber brushes. Rubber Brushes, Ltd., and E. Lord, 125, High Holborn, London.

238,815 Racing barrier with rubber covered wire. A. T. J. Bahr, 4907 West Pine Boulevard, St. Louis, Missouri, U. S. A.

238,829 Rubber capped device for restoring facial muscles. D. Whitney, 39 Rue Francois 1, Paris.

238,861 Shaving brush with rubber tube in handle. E. Watzlawik and F. Menzel, Görlitz, Germany.*

238,865 Mold with annular compressed air cushion. J. Palanca, Melilla, Spain.*

238,908 Rubber sleeved window screen. K. Berbig, 17a Hildesheimerstrasse, Hanover, Germany.*

October 21, 1925

238,991 Door stop with rubber member. J. T. Atwood, 124, North Water street, Rockford, Illinois, U. S. A.

239,007 Inductances employing rubber. G. Turner, 54 Station road, New Southgate, London.

239,030 Rubber stud for sport boots. R. Stellings, Hope Cottage, Station road, Scalby, near Scarborough.

239,047 Container employing rubber rings. Aridor Patents, Ltd., W. A. Turpin and J. Cowie, 40, Norfolk street, Strand, London.

239,055 Vacuum jacketed vessels employing rubber. T. Wilhelm, 78 Konradstrasse, Zurich, Switzerland.

239,082 Rubber buttons. H. Kanoffsky, 518 Sherman street, Milwaukee, Wisconsin, U. S. A.

239,134 Hat protector with elastic band. E. Thorpe, 1, Plumtree street, Nottingham.

October 28, 1925

239,274 Reservoir pens. T. De La Rue & Co., Ltd., and H. J. Dixon, 110, Bunhill Row, London.

239,317 Shaft couplings with rubber ring. British Thompson-Houston Co., Ltd., Crown House, Aldwych, London, and A. G. Salisbury, Dovedale, Priory road, Kenilworth, Warwickshire.

239,326 Ebonite cased condensers. A. A. Price and Price's Battery & Radio Co., Ltd., 11, Hart street, New Oxford street, London.

239,356 Game using rubber bulbs and tubes. J. F. Newall, 32, James street, Stornoway, Ross-shire.

239,365 Rubber foot rest for motorcycle. J. B. Brooks & Co., Ltd., and A. H. Lawrence, Criterion Works, Great Charles street, Birmingham.

239,391 Cleaner for pipes, etc., using rubber tube. R. Kepich, 2 Rosenbursenstrasse, Vienna.

239,396 Toothbrushes. L. G. Barton, Gladstone road, Gisborne, New Zealand.

239,406 Measurer for flat feet employing rubber ball. M. Samuel, 28 Friedrich-Strasse, Rostock, Mecklenburg, Germany.

239,414 Rubber strips for walls. F. M. G. Duplat-Taylor, 36, Victoria street, Westminster.

239,416 Garter. J. E. Faire, Rutland street, Leicester.

239,426 Shock absorber. A. Mutti, Portsmouth road, Cobham, Surrey.

239,451 Pencil sharpener employing rubber head. J. S. Drummond, P. O. Box 184, Port Gamble, Washington, U. S. A.

239,466 Heel protector. J. Goodman, 11, Reckingham street, Leeds.

239,479 Golf tee. B. E. Sawyer, 43, Summer street, Fitchburg, Massachusetts, U. S. A.*

*Not yet accepted.

New Zealand

September 24, 1925

54,221 Milking machine teat cup. Bernard Desormeaux Holmwood, c/o Donald & Sons, Ltd., Masterton.

54,404 Ebonite electrode support. J. Stone & Co., Ltd., Deptford, Kent, England.

Germany

419,751 (December 18, 1921). Hollow rubber tire. Hermann Debor, Zielstattstrasse 55, Munich.

419,753 (August 13, 1924). Protective insert for pneumatic tires. Peaney Rubber Co., Inc., New York. Represented by: R. H. Korn, Berlin S. W. 11.

419,754 (January 24, 1924). Valve. Mathias Mohr, Untermainkai 31; Frankfurt-am-Main.

419,800 (June 28, 1924). Tire casing. The Dunlop Rubber Co., Limited, Birmingham, England. Represented by Dr. R. Wirth, C. Weihe, Dr. H. Weil, M. M. Wirth, of Frankfurt-am-Main, and T. R. Koenhorn and E. Noll, Berlin S. W. 11.

419,998 (February 5, 1925). Rubber shoe without heels or upper part. Joaquin de Noronha, Schadowstrasse 25, Düsseldorf.

420,195 (July 18, 1924). Sanitary bandage. Grete Schratter, Vienna; represented by K. Ranfft, Berlin S. W. 61.

420,338 (October 4, 1924). Bicycle tire. Heinrich Wieser Jr., Aeussere Wienerstrasse 43, Munich.

Trade Marks

The United States

Two Kinds of Trade Marks Now Being Registered

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19, 1920, Section 1 (b), are non-technical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registered under the latter act trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation.

October 6, 1925, Act of February 20, 1905

204,012 PARA-BELL—inner tubes, pneumatic tires, cord tires, etc. The Columbia Tire & Rubber Co., Mansfield, Ohio.

204,071 Representation of circle with fancy outline drawn through center—rubber belting. The Jeffrey Manufacturing Co., Columbus, Ohio.

204,072 MAXLIFE—letters slanting to the left—rubber belting. The Jeffrey Manufacturing Co., Columbus, Ohio.

204,098 Representation of triangle having at top the year: 1860, below which are the letters: T. P. A. P. M., while at the base is the Russian word for St. Petersburg—raincoats, hosiery, gloves of leather, rubber and fabric, rubber boots and shoes. Société Française Trêugolnik, Levallois-Perret, France.

204,102 The word: BALLOON in white on a black background—rubber heels. Nojar Rubber Heel Co., Baltimore, Maryland.

204,125 FLYWEIGHT—shoes of canvas and rubber. Converse Rubber Shoe Co., Malden, Massachusetts.

204,126 NIMROD—in fancy lettering—shoes of canvas and rubber. Converse Rubber Shoe Co., Malden, Massachusetts.

October 13, 1925, Act of February 20, 1905

204,194 Representation of a man's figure against a black oval background at top of which are the words: LASTIC-WEB—elastic surgical bandages and supporters. Thomas Henry & Sons, Inc., Philadelphia, Pennsylvania.

204,202 Representation of a star below which is the representation of an eagle on which is superimposed the words: WERNER'S DOMINATOR—shoes, boots, slippers, etc., of leather, canvas, rubber, etc. Frank Werner Co., San Francisco, California.

204,211 Representation of a woman holding in her hand a shoe—boots, shoes and slippers made of leather, rubber fabric and combinations. Scholl Manufacturing Co., Inc., Chicago, Illinois.

204,317 Against a black background of the setting sun is the representation of a covered wagon drawn by oxen with the figure of a man with a gun on his shoulder leading the way while another man follows at the side of the wagon—suspenders, garters, armbands and belts. Pioneer Suspender Co., Philadelphia, Pennsylvania.

204,324 Letter: A in large black type—golf balls. The Goodyear Tire & Rubber Co., Akron, Ohio.

October 20, 1925, Act of February 20, 1905

204,423 Word: CONTICORD—nonmetallic vehicle tires. Continental-Caoutchouc- & Gutta-Percha-Compagnie, Hanover, Germany.

204,478 Words: THE TRAMP—rubber heels. Essex Rubber Co., Inc., Trenton, New Jersey.

204,480 Fanciful background on which are superimposed the words: VENTIFLEX—boots, shoes and slippers of leather, rubber, canvas, etc. E. E. Taylor Co., Boston, Massachusetts.

204,660 Representation of a circle in the center of which are the words: "DR. ARTHUR'S," above the words: FIRM-FLEX and beneath the words: ARCH SUPPORT SHOES—shoes of leather, rubber, etc. William H. Walker & Co., Buffalo, New York.

204,662 Representation of a portion of belting on which are the words: DUVAL-RAND CORD and beneath this the words: THE BETTER TIRES CO., CHICAGO, while in the left hand corner are the words: GUARANTEED 8,000 MILES—tires and tubes. The Better Tires Co., Chicago, Illinois.

204,663 Representation of a portion of belting on which are the words: KINGSTON CORD 12,000 MILES GUARANTEED, in small type the words: MFD. BY THE KINGSTON TIRE & RUBBER CO., CHICAGO, U. S. A., SOLE DISTRIBUTORS THE BETTER TIRES CO., CHICAGO—tires and tubes. The Better Tires Co., Chicago, Illinois.

204,664 Representation of a portion of belting on which are the words: CAMERON CORD DOUBLY GUARANTEED 12,000 MILES, underneath the words: SOLE DISTRIBUTORS THE BETTER TIRES CO., CHICAGO—tires and tubes. The Better Tires Co., Chicago, Illinois.

204,665 Representation of a portion of belting in the center of which are the words: "THE EXTRA-PLY CORD" beneath this: THE BETTER TIRES CO., CHICAGO, U. S. A. and above: TEMPLETON. In each corner is a circle bearing the words: GUARANTEED 15,000 MILES—tires and tubes. The Better Tires Co., Chicago, Illinois.

204,666 Representation of a portion of belting bearing in large letters the word: STRATFORD, beneath in smaller type the words: MFD. BY THE STRATFORD RUBBER MFG. CO., CHICAGO, U. S. A., in the right hand corner the words: GUARANTEED 6,000 MILES, while below are the words: SOLE DISTRIBUTORS THE BETTER TIRES CO., CHICAGO—tires and tubes. The Better Tires Co., Chicago, Illinois.

204,667 Representation of a portion of belting containing in large letters the words: DOUGLAS CORD, in smaller type the words: GUARANTEED 10,000 MILES, and in still smaller type the words: SOLE DISTRIBUTORS THE BETTER TIRES CO., CHICAGO, ILL.—tires and tubes. The Better Tires Co., Chicago, Illinois.

204,668 Representation of a portion of belting containing the words: DOUGLAS BALLOON TYPE CORD beneath which are the words: THE BETTER TIRES CO., CHICAGO, ILL.—tires and tubes. The Better Tires Co., Chicago, Illinois.

October 27, 1925, Act of February 20, 1905

204,739 Word: DURASPUN—raincoats, etc. C. Crawford Hollidge, Boston, Massachusetts.

204,797 Words: RED TOP—stemless rubber bladders used in footballs, basketballs, etc. The Seamless Rubber Co., Inc., New Haven, Connecticut.

204,962 Word: AIRAFT in fanciful letters—collapsible and inflatable boats. Airships Incorporated, Hammondsport, New York.

October 27, 1925, Act of March 19, 1920

205,043 Word: BURKE—golf clubs, balls, etc. The Burke Golf Co., Newark, Ohio.

205,064 Word: ESSEX—arch and heel cushions, rubber and composition soles and heels. Essex Rubber Co., Inc., Trenton, New Jersey.

November 3, 1925, Act of February 20, 1905

205,142 Representation of two lions pulling on a piece of tire above them the words: LIONS GRIP—repair kits for rubber articles. Finch-Walker Manufacturing Co., Kenton, Tennessee.

205,148 Words: FLOAT-ON-AIR—inflatable cushions. David Moseley & Sons, Limited, Manchester, England.

205,177 Representation of rubber type—rubber type. James H. Matthews & Co., Inc., Pittsburgh, Pennsylvania.

205,231 Representation of a conventionalized sunburst—balata belting and balata, rubber and fabric valves. H. Rost & Co., Hamburg, Germany.

The Dominion of Canada

Registered

October 6, 1925

38,541 An isosceles double line triangle containing representation of inter-crossed sickle and hammer, the letters: "B C H X" meaning "SUPREME COUNCIL OF NATIONAL ECONOMY" and inscription meaning "STATE TRUST OF RUBBER INDUSTRY"; outside and below the triangle are the letters: "C. C. C. P." which means "UNION OF SOVIET SOCIALIST REPUBLICS" and "MOCKBA" meaning "Moscow". The State Trust of the Rubber Industry of the Union of Soviet Socialist Republics, Moscow, Union of Soviet Socialist Republics.

October 20, 1925

38,651 Word "No" and the letters: "AA" in succession with the numeral 1 placed thereafter and joined thereto by a hyphen; representation of the bust of a woman seated on a chair and inserting an elastic web around the waist of a garment, the web extending from the garment to a small elliptical figure enclosing a reproduction of this trade mark; also the words: "ELASTIC WEB", "FINEST QUALITY" and "GUARANTEED 12 YARDS"; the whole being enclosed in two concentric circles—Elastic web and shoe laces. Rhode Island Web Co., Pawtucket, Rhode Island, U. S. A.

38,665 Recurring series of four oval-shaped figures arranged in pairs in staggered relationship and divided by a longitudinal line, each pair of figures being connected by a bridge piece—pneumatic tires. Canadian Goodrich Co., Limited, Kitchener, Ontario.

October 27, 1925

38,684 Word: "PARAMOUNT"—fountain pens, etc. The Wahl Co., Limited, Toronto, Ontario.

38,683 Representation of a sculptor at work carving out a hot water bottle, enclosed in black irregular lines; across the face thereof appears the word: "SEAMLESS"—rubber hot water bottles and bags. The Seamless Rubber Co., Limited, Toronto, Ontario.

November 3, 1925

38,750 Words: "Two Bob"—golf balls. Dunlop Tire & Rubber Goods Co., Limited, Toronto, Ontario.

The United Kingdom

October 7, 1925

460,755 Word: CAVEX—tires and tubes. Dominion Rubber Co., Limited, 47 Farrington street, London, E. C. 4.

460,915 Letters: C. A. V.—cases of ebonite for batteries and spare parts. C. A. Vandervell & Co., Limited, Warple Way, Acton Vale, London, W.3.

October 14, 1925

457,180 Word: ANCLO—rubber clothing. Charles Ferris Montagu Chambers, Claringbold House, St. Peter's road, Broadstairs.

460,712 Word: CABTYRIT—rubber compounds included in Class 4. St. Helen's Cable & Rubber Co., Limited, Trading Estate, Bath road, Slough, Buckinghamshire.

460,713 Word: CABTYRIT—goods manufactured from rubber but not including heels, tips and pads for shoes and boots or tires. St. Helen's Cable & Rubber Co., Limited, Trading Estate, Bath road, Slough, Buckinghamshire.

B461,311 Square in the center of which is the representation of a dog encircled by a collar bearing the words: "BOSTON WOVEN HOSE", "AND RUBBER COMPANY"; at top of the square are the words: "BULL" and "DOG"; below the words: "MADE" and "IN U. S. A."—India rubber machine belting. Boston Woven Hose & Rubber Co., Hampshire & Portland streets, Cambridge, Massachusetts, U. S. A.

461,491 Representation of a man standing on a spring board about to dive, above the word: WELCO—goods manufactured from India rubber not included in other classes. The Welsh Rubber Co., 55, Charles street, Cardiff.

October 21, 1925

461,752 Representation of an eagle standing at the top of a circle which contains the words: "THE SCOTIA" and "NORTH BRITISH RUBBER CO."—rubber boots, shoes, etc. The North British Rubber Co., Limited, Castle Mills, Fountainbridge, Edinburg, Scotland.

462,027 Representation of a girl holding a comb in her hand—combs. Heinrich Otto Traun, trading as Dr. Heinr. Traun & Sohne Vormals Harburger Gummi Kamm Co., 59 Meyerstrasse, Hamburg 8, Germany.

462,052 Word: GRIFFIN—goods manufactured from India rubber and gutta-percha not included in other classes. Heinrich Otto Traun, trading as Dr. Heinr. Traun & Sohne Vormals Harburger Gummi Kamm Co., 59 Meyerstrasse, Hamburg 8, Germany.

462,053 Word: GRIFFIN—hose included in Class 50, pipes, cigarette tubes, etc., but not including combs. Heinrich Otto Traun, trading as Dr. Heinr. Traun & Sohne Vormals Harburger Gummi Kamm Co., 59 Meyerstrasse, Hamburg 8, Germany.

October 28, 1925

B450,308 Word: SULKA—suspenders, garters, etc.—Sulka & Co., 512 Fifth avenue, New York, N. Y., U. S. A.

457,257 Representation of a triangle in which are the numerals: 1860 and Russian characters meaning: "ST. PETERSBURG", beneath the triangle the word: "TREUGOLNIK" meaning "TRIANGLE"—goods manufactured from rubber and gutta percha not included in other classes and not including tobacco pouches. Société Française Tréugolnik, 3 Rue Chauveau Lagarde, Paris, France.

460,388 Representation of a cat above which is the word: FELIX—tire repair outfits, etc. Pat Sullivan, 1947 Broadway, New York, N. Y., U. S. A. (Harold J. C. Forrester, Jessel Chambers, 88, Chancery Lane, London, W. C. 2.)

460,775 Word: IRONEL—corsets, corslettes and brassieres. Worcester Warehouse Co., Limited, 76, Mortimer street, London, W. 1.

461,090 Word: WALTON—India rubber boots, shoes, etc. The New Liverpool Rubber Co., Limited, 292, Vauxhill road, Liverpool.

462,423 Word: "PIONEER"—fountain pens, etc. Harold James Simon, 11, Little Britain, London, E. C. 1.

462,479 Word: CRYSTAL—garters. Archibald Turner & Co., Limited, 7, Jewin street, London, E. C. 1.

New Zealand

September 24, 1925

22,956 Word: ITSOL—goods manufactured from rubber or gutta percha. I. T. S. Rubber Co., Limited, 42, Great Russell street, London, W. C. 1., England.

Designs

The United States

68,429 Tire tread. Term 14 years. James M. Cranz, Buffalo, New York.

68,525 Swimming ring. Term 7 years. Albert J. Eldon, Mount Vernon, assignor to The Paramount Rubber Consolidated, Inc., Tuckahoe, both in New York.

68,532 Tire tread. Term 7 years. Chester O. Henderson, assignor to Henderson Tire & Rubber Co., Inc., both of Columbus, Ohio.

68,536 Tire. Term 14 years. William Lenhoff, San Francisco, California, assignor to Lambert Tire & Rubber Co., Barberton, Ohio.

68,540 Comb. Term 7 years. George H. Nevius, Shrewsbury, New Jersey, assignor to E. I. du Pont de Nemours & Co., Wilmington, Delaware.

68,541 Heel. Term 14 years. Everett T. Packard, Avon, Massachusetts.

68,557 Tire tread. Term 7 years. Park E. Welton, Cuyahoga Falls, Ohio, assignor to The Paul Rubber Co., Salisbury, North Carolina.

68,579 Shoe sole. Term 14 years. Moss Hyman Levy, London, England.

68,584 Broad-tread tire. Term 3½ years. Harry McCreary, Indiana, Pennsylvania.

68,607 Tire. Term 14 years. Theodore E. Thomas, Baltimore, assignor to Kelly-Springfield Tire Co., Cumberland, both in Maryland.

The Dominion of Canada

6,894 Tire tread. Dunlop Tire & Rubber Goods Co., Limited, Toronto, Ontario.

6,904 Tire. Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec.

6,905 Tire. Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec.

6,906 Tire. Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec.

6,911 Tire tread. Dunlop Tire & Rubber Goods Co., Limited, Toronto, Ontario.

6,919 Tire. The Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Ontario.

6,920 Tire. The Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Ontario.

6,921 Tire. The Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Ontario.

6,922 Heel. The Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Ontario.

Germany

916,554 (June 10, 1925). Balloons in the shape of heavenly bodies: sun, moon, stars, etc. Sachsland Gummiwarenfabrik, Bürgel, Thuringia.

916,676 (June 13, 1925). Ladies' hat of sheet rubber with air-filled tube edge. Gummiwarenfabrik. M. Steinberg, Köln-Lindenthal.

916,773 (January 3, 1925). Dice cup. Mittelland-Gummiwerke A.-G., Hannover-Linden.

916,930 (May 16, 1925). Tube impregnated against rotting. Friedrich Friedemann & Söhne, Langenleuba-Niederhain.

916,943 (June 15, 1925). Insulating flask. Hannoversche Gummiwerke Excelsior A.-G., Hannover-Limmer.

916,959 (June 18, 1925). Rubber ring holder. Aug. Hölken Nachfolger, Wülfrath.

916,970 (July 3, 1925). Insole of sponge rubber with lining. A. G. Metzeler & Co., Munich.

917,005 (June 15, 1925). Rubber disk eraser. Karl Reichenbach, Klauprechtstrasse 5, Karlsruhe.

917,023 (June 18, 1925). Rubber cone stopper with metal capsule. Ewald Walter, Lüdenscheid.

917,077 (June 4, 1925). Wind-bird of sheet rubber. Gummiwarenfabrik M. Steinberg, Köln-Lindenthal.

917,159 (June 20, 1925). Ladies' clothes hanger with rubber pegs on the edges. Josef Grünwald, Maritzstrasse 18, Berlin.

917,301 (June 23, 1925). Rubber heel with anti-slip device. Alfred Berner, Romintenerstrasse 17, Berlin.

917,318 (June 24, 1925). Balloon in the shape of a bottle. Vereinigte-Berlin-Frankfurter Gummiwarenfabriken, Berlin-Lichterfelde.

917,337 (February 11, 1925). Tube protector for rubber tires. Erich Zschille, Planitzstrasse 103, Chemnitz.

917,400 (February 28, 1925). Drip board. Rheinische Gummi-Gesellschaft W. Klotz & Co., Düsseldorf.

917,446 (June 24, 1925). Rubber rests for furniture legs. Robert Schmidt, Königstrasse 25, Lübeck.

917,518 (February 9, 1925). Sanitary bandage. Jacob Wächtershaüser, Gonzenheim.

917,558 (June 16, 1925). Inflatable shark of sheet rubber. Gummiwarenfabrik M. Steinberg, Köln-Lindenthal.

917,566 (June 20, 1925). Sanitary bandage. Max Schneider, Aegidiendamm 9, Hannover.

917,644 (June 23, 1925). Horse shoe with exchangeable rubber lining. Albert Orlowsky, Harvestehuder Weg 16, Hamburg.

917,706 (June 16, 1925). Eye dropper with rubber closing. Bengen & Co., G. m. b. H., Hannover.

917,724 (June 23, 1925). Rubber glove. Phil. Penin Gummiwarenfabrik, A.-G., Leipzig-Plagwitz.

917,865 (March 7, 1925). Rubber valve cone with cone holder for water-conduit cocks. Gottfried Blankenburg, Pichelsdorferstrasse 99, Spandau.

917,880 (June 20, 1925). Air pump holder of rubber band for bicycle and motorcycle pumps. Martin Hagendorf, Naunynstrasse 53, Berlin.

917,940 (June 17, 1925). Sponge rubber tooth brush. Kurt Riegel, Jena.

917,946 (June 20, 1925). Air-tight rubber closing for all kinds of cylindrical glasses. Cellulo-Werke Adolf Korwan, Karlsruhe i. B.

917,966 (June 29, 1925). Compressed air tire composed of two concentric tubes. Hans Roenpage, Hamburg-Hellbrok.

918,025 (June 29, 1925). Rubber pocket for matches. Harburger Gummiwaren-Fabrik Phoenix A. G., Harburg, a. d. Elbe.

918,099 (June 20, 1925). Elastic strips for trouser suspenders. Kassack & Krielke, G. m. b. H., Elberfeld.

918,100 (June 20, 1925). Elastic sleeve holder. Kassack & Krielke, G. m. b. H., Elberfeld.

918,161 (June 20, 1925). Bow with rubber protecting ring. Gustav Nestler, Blucherplatz 3, Berlin.

918,425 (July 4, 1925). Small rubber cot for sanitary bandages. A. Benndorf & Co., G. m. b. H., Leipzig-Plagwitz.

918,609 (May 25, 1925). Sponge bag of sheet rubber. Gummiwaren-Fabrik M. Steinberg, Köln-Lindenthal.

918,677 (July 6, 1925). Sponge rubber brush. Willy Hentze, Schwanthalerstrasse 86, Munich.

918,879 (June 27, 1925). Rubber abdominal binder. August Kibele & Co., Weissenfels a. d. S.

918,911 (July 6, 1925). Tube protection device for automobiles, motorcycles and bicycles. Richard Schafer, Bankstrasse 3, Magdeburg.

National Tire Dealers' Association Convention

The Sixth Annual Convention of the National Tire Dealers' Association was held November 17 to 19, 1925, at the Hotel Chase, St. Louis, Missouri. About 700 dealers and factory representatives gathered for the convention. Dealers were present from the Atlantic to the Pacific coasts and among the factory representatives were many prominent executives.

The committee reports were acceptable to the convention which elected the following list of officers for 1926: President, H. A. Ruhnke, Milwaukee, Wisconsin; Vice-president, H. D. Eva, Duluth, Minnesota; Directors, S. V. Harper, Fort Smith, Arkansas; Victor Shaw, Charlotte, North Carolina; A. N. O'Leary, Chicago, Illinois; A. L. Glick, Pittsburgh, Pennsylvania; A. P. Woehrle, St. Louis, Missouri; Arthur Roderick, Akron, Ohio.

In thirteen resolutions, five dealt adversely with certain merchandizing practices of manufacturers. One of these resolutions strongly condemned the entry into the retail field by manufacturers as unfair and disloyal to the investments and efforts of tire distributers who are members of the Tire Dealers' Association.

Much interest was taken in the report of the Ways and Means Committee which had under consideration recommendations made by directors. These provided for the expansion of the association's activities and strengthening of its finances. It was decided to place national dues for members of local associations at $15.00 and dues for individual members not affiliated with a local at $25.00 a year. A house organ is to be issued and a paid executive and organizer will be employed. As a guarantee fund against a financial deficit dealers were called upon to pledge themselves for $100. More than 32 new dealers subscribed the specified amount. The business session was concluded by the enthusiastic selection of Memphis, Tennessee, as the next convention city.

Following the business sessions retiring President Burger in his address outlined the plans and activities of the association and how they have been received by tire manufacturers. President Burger in introducing R. N. Hudson, chief of the division of simplified practice of the United States Department of Commerce, solicited the cooperation of tire dealers in the work undertaken by the government for the simplification of tire sizes. Mr. Hudson declared that there is no reason why tire dealers and manufacturers cannot agree on a limited line of products and eliminate the waste caused by the wide variety of merchandise now handled by retailers. The problem is a joint one between tire dealers, tire manufacturers, car manufacturers and car owners and can be handled at a conference. Dealers were urged to give this serious thought and endeavor to interest tire manufacturers.

R. L. Palmerton, chief of the rubber division of the United States Department of Commerce, as supervisor of the tire dealer stock surveys conducted by the government explained the results of the survey made October 1, and how and why tire dealers were periodically called upon to check inventories.

Concerning the rubber supply he stated that while the Stevenson Restriction Act has been in force for 3 years on November 1, it has become particularly effective recently because (1) previously manufacturers had bought their rubber from plantations in the non-restricted areas; (2) evasion of the law, smuggling and coupon forging had made possible the shipment of more rubber than had been intended under restriction; (3) large stocks in primary, secondary and consuming markets permitted the easy purchase of requirements by manufacturers. The present shortage is due to nullification of these three factors.

The largest exhibit of tire shop equipment and accessories ever held in the history of the association was one of the most important features of the Convention.

Among the exhibitions were those of the following companies: The Kokomo Rubber Co., Kokomo, Indiana, showing a complete line of high pressure and balloon tires. The Akron Standard Mold Co., Akron, Ohio, watch-case vulcanizer used for tire retreading; The Williams Foundry & Machine Co., Akron, Ohio, full line of Akron-Williams repair equipment.

WORLD PRODUCTION AND CONSUMPTION OF CRUDE RUBBER

	World Production			United States				Average Yearly Price Per Pound, United States	
						Retained for Consumption			
Year	Total Long Tons	Plantation Long Tons	Total Wild (Mainly Tropical America and Africa) Long Tons	Imports Long Tons	Reexports Long Tons	Amount Long Tons	Per Cent of World Production Long Tons	Fine Para[1] Dollars	Ribbed Smoked Sheet[2] Dollars
1905	[3]59,494	174	59,320	28,637	1,616	27,021	45.4	1.243	....
1906	62,581	577	62,004	30,316	1,698	28,618	45.7	1.213	....
1907	67,170	1,157	66,013	30,649	1,832	28,817	42.9	1.063	....
1908	66,566	1,796	64,770	34,058	1,655	32,403	48.7	.871	....
1909	73,756	3,386	70,370	41,950	2,156	39,794	54.0	1.481	....
1910	80,746	7,269	73,477	45,038	2,764	42,274	52.4	1.908	2.066
1911	82,829	14,383	68,446	36,987	2,523	34,468	41.6	1.110	1.413
1912	103,947	30,113	73,834	52,705	2,456	50,249	48.3	1.052	1.216
1913	115,001	51,721	63,280	51,732	1,881	49,851	43.3	.807	.820
1914	121,205	73,153	48,052	63,868	2,618	61,250	50.5	.616	.653
1915	169,017	114,277	54,740	98,876	2,082	96,794	57.3	.557	.657
1916	210,079	158,993	51,086	120,576	4,098	116,478	55.4	.669	.725
1917	277,938	221,187	56,751	181,089	4,000	177,089	63.7	.648	.722
1918	217,511	180,800	36,711	145,518	2,746	142,772	65.6	.549	.601
1919	398,998	348,574	50,424	239,259	2,282	236,977	59.4	.483	.487
1920	341,135	304,671	36,464	252,922	4,160	248,762	72.9	.333	.363
1921	300,649	276,746	23,903	185,394	5,716	179,678	59.8	.182	.163
1922	406,110	378,232	27,878	301,076	4,809	296,267	73.0	.183	.170
1923	[4]406,423	379,738	[4]26,685	309,144	8,772	300,372	73.9	.248	.296
1924[4]	414,703	386,703	28,000	328,056	[10]10,309	317,747	76.6	.212	.260

NET IMPORTS OF CRUDE RUBBER BY THE PRINCIPAL RUBBER CONSUMING COUNTRIES[5]

Country	1913 Long Tons	1919 Long Tons	1920 Long Tons	1921 Long Tons	1922 Long Tons	1923 Long Tons	1924[4] Long Tons
Total	102,821	335,497	358,840	302,346	396,910	414,210	418,174
United States	49,851	236,977	248,762	179,678	296,267	300,372	317,747
United Kingdom[6]	25,275	42,520	56,972	42,116	11,164	12,536	[7]11,110
France	5,751	20,300	16,606	14,701	27,660	31,108	34,442
Germany	16,264	4,000	13,400	22,428	27,551	19,436	22,738
Italy	2,505	10,200	6,300	4,000	6,500	8,490	.....
Canada	1,987	9,500	11,300	8,259	9,353	13,255	14,391
Japan[8]	1,188	12,000	5,500	23,164	16,581	17,318	18,905

Source: Bureau of Foreign and Domestic Commerce, except as noted.

[1]Bureau of Labor Statistics, Department of Labor.

[2]Commercial Research Department, United States Rubber Company, except 1923 and 1924, which were compiled for the *India Rubber World*.

[3]Excluding Venezuela.

[4]Estimated.

[5]Statistics for 1913 from Commerce Monthly; for 1919 to 1923, from "World's Rubber Position," published by W. H. Rickinson & Son.

[6]Figures for 1913 include reclaimed and waste rubber; later figures relate to crude rubber only.

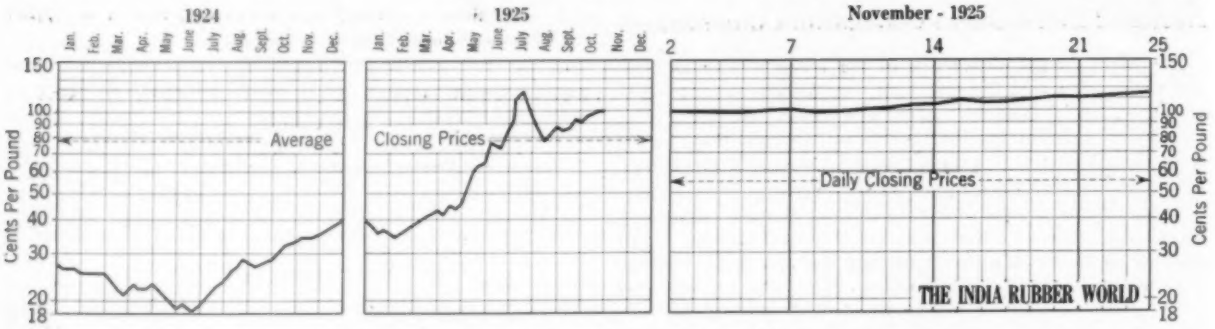
[7]Minus quantity.

[8]Figures for 1913 to 1918 relate to gross imports; figures for net imports

RUSSIA EXPERIMENTING IN RUBBER CULTIVATION

British rubber restriction measures are so hampering the rubber industry of Russia that the Soviet authorities are cooperating with industrialists in an endeavor to make the country independent of Great Britain for its supply of rubber. In Turkestan, Transcaucasia and other sub-tropical sections of the country, experiments in rubber growing are being undertaken, while scientists are being sent to South America for the purpose of studying rubber cultivation there.

ON OCTOBER 28 A NEW FACTORY FOR THE PRODUCTION OF RUBBER goods was established in Mexico City, Mexico, the organization to be known as Compania Hulera El Popo S. A. (Rubber Company El Popo). At the opening of the new plant President Calles, accompanied by the Secretary for Industry, Commerce and Labor was in attendance.



Ratio Graph of New York Closing Prices of Spot Ribbed Smoked Sheets

Review of the Crude Rubber Market

New York

THE market for spot ribbed smoked sheet during November showed a marked increase in buying activity and price, the advance from October 26 ranging from 99 cents to $1.13. All other grades and positions were included in the general upward trend. The closing prices for ribs on October 31 were 98 cents buyers, 99 cents sellers, and on November 21 ribs were $1.12 buyers, $1.13 sellers.

This rise was due in the main to consuming demand. The Colonial Office November 2 released an additional 10 per cent for the ensuing quarter, raising the exportable allowance to 85 per cent. Nothing was said about any further action at the end of the quarter. It is, therefore, generally expected that the next release will be 10 per cent due February 1 raising the exportable quota then to 95 per cent.

The November market began somewhat inactively, preceding election holiday, after which active buying sent prices up in sympathy with higher cables from London, and the limited offerings from the Far East. Heavy dealings took place in all grades and positions. Buyers outnumbered sellers and readily met dealers' prices. The market for the week ended November 7 closed firm and similar conditions prevailed during the following week. Futures advanced even more than spot and nearby under the influence of the London and far eastern markets, both of which showed big advances in prices. Off grades were very scarce. Roll brown was in large demand with no supplies available.

The market conditions for the week ended November 21 were practically a repetition of those of the week preceding. There were no signs of reaction and the heavy consuming demand seeking supplies for the first quarter of 1926 indicates continuation of the upward trend in prices for all grades. Some of the smaller rubber establishments are seriously affected by the price situation and its impending advance to still higher levels.

The consumption in January, February and March will probably require 35,000 tons monthly. America has taken from the London market heavy tonnages for January-March delivery. If London has sold this rubber short a bad situation will result. Already consumers are competing for stocks in all positions and, quite apart from price considerations, are seeking to learn if their spring requirements will be met.

Statistics affecting the January-March position give estimated world consumption and production for that period as follows: Consumption 150,000 tons, production 140,000 tons, shortage of supply for the quarter 10,000 tons.

Parás held strong throughout the month. They were in rather limited supply, moving in sympathy with plantations. Balatas and other grades were inactive with some inquiry and sales at steady prices.

Importations of all grades in October were 34,908 tons, compared with 37,157 tons one year ago. Plantation arrivals for October were 31,450 tons, compared with 34,073 tons one year ago. Total importations of plantation rubber for ten months ended October 31 were 287,694 tons, compared with 246,033 tons for the corresponding period of 1924. Total importations of all grades of rubber for the ten months ended October 31, 1925, were 309,268 tons, compared with 261,018 tons for the corresponding period of last year. Arrivals of rubber for November are estimated to total 33,000 tons.

London

The London market for the month opened quiet and firm at 48*d* sellers, followed by a decline of ½*d* on poor American support. This situation was followed in a few days by active in-

New York Spot Closing Rubber Prices

PRICES IN CENTS, PER POUND

PLANTATIONS	October, 1925					November, 1925																	
	27	28	29	30	31	2	*3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23
Sheet																								
Ribbed smoked..	99½	99¾	101½	99¼	100¼	99¾	...	98¾	98¼	100	100¾	98¼	99½	100¼	101¾	104½	105½	109	107	107	109¾	110¾	110½	110½
Crêpe																								
First latex	100¾	99¼	101½	100	100¼	100	...	98¾	98¼	100¼	100¼	99	100	101	103	105½	106	109	107	107	110¼	110¾	110¾	110¾
Off latex	98½	98½	99	97½	98½	98	...	96½	96	97½	97½	97½	98¼	99¼	100½	104½	104½	106½	105	105	108¾	108¾	108½	108½
No. 2 blanket..	90¼	91	91	89	90¼	90½	...	89½	88	90	90	89¾	90	92¾	95½	98¾	99	103¾	102¾	103	106	106¾	107	107
No. 3 blanket..	89½	89½	89¾	87¼	89¾	89¼	...	88½	87	88¾	89	88¼	88½	90½	93½	97½	98	102½	101¾	101¾	105½	105¾	106	106
No. 4 blanket..	87¾	87¼	88	86	88¾	88¼	...	87½	86	87	87½	87	86½	88¾	91	95½	97	101	100½	100½	102¾	103¾	103½	103½
Thin, clean brown	89	89	89½	88½	89¾	89¾	...	89	87¾	88½	89	89½	89	91½	94½	96½	98	103½	102¾	102¾	105½	105¾	106	106
Rolled brown...	77	77½	78¼	77½	77½	77¾	...	77¾	78¼	79¼	79½	81¾	83	85	89¾	91¾	92¾	100½	99½	99½	101¼	101¾	101¾	101¾

*Holiday.

terest in 1926 positions which began a steady rise in values, reaching 54½*d* within three weeks. The stimulating influences were the heavy buying by American and Continental interests; the diminishing London stocks and news, at the middle of the month, of the American tire price advance on original equipment.

Between November 2 and November 21, sellers' prices for spot ribbed smoked sheets advanced from 48*d* to 54½*d*. The steady increase in price in the forward positions is very noticeable. There is good enquiry for these positions for American account. Producers are realizing that there is not much danger of a heavy drop from present spot prices for some months to come. They are therefore disposed to ship rubber for spot sale rather than sell it at a heavy discount for delivery some months in the future. The reports of London stocks continue to show a very narrow margin. The weekly record was as follows: October 26, 5,132 tons; November 2, 4,931 tons; November 9, 4,905 tons; November 17, 4,503 tons; November 23, 4,500 tons.

Singapore

The month began with a good demand at 45⅝*d* sellers, held firm on local buying and rose November 7 to 48¼*d* sellers, due to interest centering on 1926 positions. The second and third weeks were cut up by holidays but the market showed good demand for all grades, was firm and brisk reaching 50⅝*d* sellers on November 20, dropping on the following day to 49⅞*d* sellers.

Comparative Low and High New York Spot Rubber Prices

	November 1925*		1924		1923	
PLANTATIONS						
First latex crêpe	$0.99	@$1.14	$0.33½	@$0.35	$0.26⅞	@$0.28
Smoked sheet, ribbed	.98	@ 1.13	.33¾	@ .35	.26⅜	@ .27⅝
PARAS						
Upriver, fine	.89	@ .96	.32½	@ .34	.21½	@ .24½
Upriver, coarse	.60	@ .70	.22	@ .24	.17¾	@ .19¾
Islands, fine	.76	@ .89	.29	@ .31	.20¼	@ .25½
Islands, coarse			.19	@ .19½	.11	@ .20½
Cametá	.45	@ .60	.19	@ .21	.11	@ .13

*Figured to November 21, 1925.

British Malaya

Rubber Exports

An official cablegram from Singapore to the Malay States Information Agency, 88 Cannon street, London, E.C.4, England, states that the amount of rubber exported from British Malaya in the month of October last totaled 28,711 tons. The amount of rubber imported was 14,986 tons, of which 11,953 tons were declared as wet rubber. The following are comparative statistics:

	1924		1925	
	Gross Exports Tons	Foreign Imports Tons	Gross Exports Tons	Foreign Imports Tons
January	23,844	8,867	19,183	10,132
February	19,395	7,440	21,622	10,071
March	22,294	8,269	26,836	13,399
April	20,551	7,909	22,414	11,750
May	19,674	7,259	26,667	12,979
June	18,084	7,435	27,894	14,706
July	21,670	9,777	24,809	16,192
August	22,133	9,776	27,753	12,025
September	25,127	9,291	29,425	12,913
October	20,270	9,981	28,711	14,986
Totals	213,042	86,004	255,314	129,153

Distribution

The following is a comparative return of distribution of shipments during the months of September and October, 1925:

DESTINATION	September, 1925 Tons	October, 1925 Tons
United Kingdom	5,625	6,063
U. S. A.	18,834	20,184
Continent of Europe	3,311	2,552
British Possessions	347	342
Japan	1,289	1,564
Other foreign countries	19	6
Totals	29,425	28,711

Dealers' Stocks of Rubber

A telegram from Singapore to the Malay States Information Agency, 88 Cannon street, London, E. C. 4, England, states that dealers stocks of rubber on September 30, 1925, were in Singapore 14,028 tons, and in Penang 2,498 tons.

New York Quotations

Following are the New York spot and future rubber quotations, for one year ago, one month ago, and November 24, the current date:

	November 24, 1924		October 26, 1925		November 24, 1925	
Plantation Hevea						
Rubber latex (Hevea)...*gal.*	$1.30	@	$3.25	@	$3.66	@
CREPE						
First latex, spot	.34	@.34¼	.99	@.99½	1.13	@1.14
Nov.-Dec.	.34¼	@	.95	@.95½	1.11	@1.12
Jan.-March	.34½	@	.86½	@.87	1.10	@1.12
Jan.-June		@	.82	@.83	1.07	@1.08
Apr.-June	.34⅜	@	.80	@.81	1.05	@1.06
Off latex, spot	.33¾	@	.97	@.97½	1.03	@1.04
Amber No. 2, spot	.33¾	@.34	.93	@.94	1.08	@1.09
Nov.-Dec.	.33¾	@	.90	@.90½	1.07	@1.08
Jan.-March	.33⅞	@	.79	@.80	1.08	@1.10
Jan.-June		@	.74	@.75	1.05	@1.06
Apr.-June	.33¾	@	.72	@.73	1.03	@1.04
Amber No. 3 spot	.33½	@.33¾	.92	@.93	1.07	@1.08
Brown, thin, clean	.33½	@.33¾	.90	@.91	1.07	@1.08
Brown, specky	.33	@.33¾	.88	@.89	1.05	@1.06
Brown, roll	.32½	@.32¾	.76	@.77	1.04	@
Sole crêpe	.42	@.45	1.05	@	1.16	@
SHEET						
Ribbed, smoked, spot	.34	@.34⅛	.98	@.98½	1.12	@1.13
Nov.-Dec.	.34⅛	@	.94	@.94½	1.09	@1.10
Jan.-March	.34¼	@	.86	@.87	1.10	@1.10¼
Jan.-June		@	.82	@.83	1.07	@1.08
Apr.-June	.33¾	@	.80	@.81	1.05	@1.06
East Indian						
PONTIANAK						
Banjermassin	.07	@.07⅛	†.16	@.16		@.16
Palembang	.07½	@		@		@
Pressed block	.13½	@.13¾	†.22	@.24		@.30
Sarawak	.07⅞	@		@		@.16
South American						
PARAS						
Upriver, fine	.32¾	@	.94	@	1.01	@1.02
Upriver, fine	*.43½	@	*1.12	@	*1.26	@
Upriver, medium	.30	@		@	.95	@.96
Upriver, coarse	.23½	@	.62	@	.76	@.77
Upriver, coarse	*.33	@	*.83	@	*.97	@
Islands, fine	.29¼	@	.78	@	.81	@.82
Islands, fine		@	*1.07	@	*1.12	@
Cametá	†.18	@	.44	@		@
Acre, Bolivian, fine	.33	@	.94½	@	1.02	@1.03
Acre, Bolivian, fine	*.44	@	*1.13	@	*1.28	@
Beni Bolivian	.33¼	@	.95	@	1.02	@1.03
Madeira, fine	.33½	@	†.97	@	1.02	@1.03
Peruvian, fine	.31¼	@	.92	@	.98	@.99
Tapajos, fine	.31¼	@	.87	@		@
CAUCHO						
Upper caucho ball	.23½	@	.63	@	.78	@.79
Upper caucho ball	*.33	@	*.85	@	*.98	@
Lower caucho ball	.21½	@	.59	@	.75	@
Maniçobas						
Ceará negro heads	.26	@	.65	@	.60	@
Ceará scrap	.12	@	.45	@	.35	@
Manicobas 30% guaranty	.24	@	.50	@	.55	@
Mangabeira, thin sheet	.27	@	.50	@	.48	@
Centrals						
Central scrap	.23	@.23½	.56	@	.75	@
Central wet sheet	.13	@.16	.43	@	.62	@
Corinto scrap	.23	@.23½	.56	@	.75	@
Esmeralda sausage	.23	@.23½	.56	@	.75	@
Guayule washed and dried	.28	@	.52	@	.78	@
Africans						
Black Kasai		@	.82	@		@.85
Black Upper Congo	.26	@	.82	@		@.82
Red Upper Congo	.25	@	.76	@		@.78
Kasai Loanda	.26	@	.72	@		@
Upper Congo Arumini		@	.76	@		@
Masai (Kenakry)		@	.76	@		@
Gutta Percha						
Gutta Siak	.17	@.18⅜	.24	@	.31	@
Gutta Soh	.27	@.28½		@	.30	@
Red Macassar	†3.00	@	3.60	@	3.00	@
Balata						
Block, Ciudad Bolivar	.62	@.64	.61	@	.65	@
Colombia	.48	@.51	.53	@	.56	@
Panama	.48	@.50	.53	@		@
Surinam, sheet	.74	@.75	.75	@	.76	@
amber	.76	@.78	.82	@	.82	@
Chicle						
Honduras	‡.58	@.68	‡.58	@.68	‡.54	@
Yucatan, fine	‡.58	@.68	‡.58	@.68	‡.55	@

*Washed and dried crêpe. Shipment from Brazil.
†Nominal. ‡Duty paid.

Reclaimed Rubber

New York

The consumption of reclaims of all grades continues to increase in tonnage month by month. Reclaimers find it very difficult to keep their customers supplied in spite of their recently enlarged reclaiming facilities. This condition is certain to prevail for some months to come owing to the rising prices for crude rubber and its inadequate supply. Now, as never before, rubber manufacturers are profiting by the advantages derived from the use of reclaim when used with discretion and good judgment. New programs for expansion continue to develop for increasing the output of standard grades. All grades without exception are priced higher now than one month ago owing to the heavy and insistant demand existing for them. Reclaims, even at the advances here recorded, still represent excellent value at the prices.

An additional descriptive feature of the grades quoted in the following price list is the inclusion of their respective average specific gravities. This information in connection with the pound prices affords the data necessary for those interested to compare the relative economy of each grade. Pound price multiplied by specific gravity equals volume cost.

Quotations given are nominal.

New York Quotations

November 25, 1925

	Specific Gravities	Price Per Pound
Auto Tire		
Black	1.21	$0.11¼ @ $0.12
Black, washed	1.18	.12¼ @ .13
Black selected tires	1.20	.13 @ .13¼
Dark gray	1.35	.16½ @ .17
Light gray	1.38	.18 @ .19
White	1.40	.19 @ .20
High Tensile Black		
Super-reclaim, No. 1	1.20	.34 @ .35
No. 2	1.20	.19 @ .20
Shoe		
Unwashed	1.60	.10¾ @ .11¼
Washed	1.50	.13¾ @ .14¼
Tube		
No. 1	1.00	.30 @ .32
No. 2	1.18	.19 @ .20
Uncured Tire Friction		
No. 1	1.00	.70 @ .75
No. 2	1.20	.55 @ .60
Miscellaneous		
High grade, red	1.35	.19 @ .20
Truck tire, heavy gravity	1.40	.11 @ .12
Truck tire, light gravity	1.55	.12¼ @ .12½
Mechanical blends	1.60	.09 @ .10

COMMITTEES D-11 AND D-13

The officers of Committee D-11 on Rubber Products and of D-13 on Textile Materials for 1925-26 are as follows: Committee D-11, F. M. Farmer, chairman; H. S. Vassar, vice-chairman; E. H. Grafton, secretary. Committee D-13, W. F. Edwards, chairman; Russell T. Fisher, vice-chairman; H. J. Jaquith, vice-chairman; K. B. Cook, secretary.

Sub-Committees of Committee D-11 have been appointed to consider: (1) air hose, (2) belting, (3) cold water hose, (4) protection of persons from electric shock, (5) insulated wire and cable, (6) packings, gaskets and pump valves, (7) steam hose, (8) nomenclature and definitions, (9) insulating tape, (10) standard procedure for testing rubber products, (11) chemical analysis of rubber products, (12) performance tests of rubber products, (13) valves for fire alarm systems.

The Sub-Committees of Committee D-13 will consider: (1) revisions, (2) fabric test methods, (3) testing machines, (4) identification of textile fibers, (5) nomenclature and definitions, (6) tire fabrics, (7) yarn and threads, (8) humidity, (9) hose, belt and numbered duck, (10) osnaburg cement bags, (11) knit goods, (12) wool, woolens and worsteds, (13) narrow fabrics, (14) rope and cordage, (15) rayon.

The Market for Rubber Scrap

New York

The rubber scrap market for November gained notably in activity over the conditions prevailing in October. The tonnage of supplies in all grades is ample for all requirements. Reclaimers are purchasing steadily and conservatively in orders of moderate tonnage. Prices have advanced moderately on certain scrap, especially tire grades. Dealers anticipate a heavier demand for stocks following the holiday season.

Export trade in rubber scrap to England, France and Germany continues in reduced volume owing to foreign industrial and credit conditions.

BOOTS AND SHOES. Some good movement has occurred in this grade although as a whole the demand has been steady and of moderate proportions.

INNER TUBES. The call for inner tubes is enlarging and higher prices have prevailed with the increase in market activity.

MIXED TIRES. The demand for solid truck tires has improved while that for pneumatic tire scrap grades remains unchanged at the quotations of a month ago.

AIR-BRAKE HOSE AND MECHANICALS. Prices are firmer and demand light.

Quotations for Carload Lots

November 25, 1925

Boots and Shoes		
Boots and shoes, black	lb.	$0.03½ @ $0.03¾
Red and white	lb.	.02½ @ .02¾
Trimmed arctics, black	lb.	.02¾ @ .02½
Untrimmed arctics	lb	.02 @ .02¼
Tennis shoes and soles	lb.	.01¾ @ .01¾
Hard Rubber		
No. 1 hard rubber	lb.	.10 @ .12
Battery jars, black compound	lb.	.02¼ @ .02½
Inner Tubes		
No. 1, floating	lb.	.13 @ .14
No. 2, compounded	lb.	.09 @ .09½
Red	lb.	.07½ @ .08
Mixed tubes	lb.	.08 @ .08¾
Mechanicals		
Mixed black scrap	lb.	.01¼ @ .01½
Heels	lb.	.01 @ .01¼
Hose, air-brake	ton	26.00 @ 28.00
regular	ton	21.00 @ 22.00
No. 1 red	lb.	.03¼ @ .03½
No. 2 red	lb.	.01¾ @ .02¼
Red packing	lb.	.01½ @ ....
White, druggists' sundries	lb.	.04 @ .05
Mechanical	lb.	.02¼ @ 04
Tires		
Pneumatic, Standard—		
Mixed auto tires with beads	ton	27.00 @ 28.00
Beadless	ton	28.00 @ 29.00
White auto tirer with beads	ton	42.00 @ 45.00
Beadless	ton	65.00 @ 68.00
Mixed auto peelings	ton	40.00 @ 41.00
Solid—		
Mixed motor truck, clean	ton	50.00 @ 52.00

PROPOSED SCRAP RUBBER RATINGS

A recent traffic bulletin issued by the National Association of Waste Material Dealers, Inc., calls attention to rates proposed in Consolidated Freight Classification Docket No. 24, for old rubber tires that were of value for adjustment, repairing, vulcanizing and retreading, or for scrap rubber tires mounted on steel rims. It is believed that tires having value for the purposes mentioned probably amount to less than 2 per cent of all scrap rubber shipments.

The association by means of Proposal No. 6358 has also placed before the Southwestern Freight Bureau a request to broaden the description of scrap rubber from Texas points to the Mississippi River Crossings in connection with the proportional rate of 36½ cents, so that all grades of rubber, including boots and shoes, air brake hose, etc., could be shipped under that rate.

"PNEUMATIC TIRES," BY HENRY C. PEARSON. An encyclopedia of tire manufacture, repair, rebuilding, machinery and processes.

The Market for Chemicals and Compounding Ingredients

New York

COMPOUNDING ingredients of every sort have been consumed during the past month in large tonnages in all lines of rubber goods manufacturing, particularly in the tire division wherein only moderate curtailment of output has taken place within the past few weeks. The rising prices ruling for crude rubber are offset as far as possible by renewed efforts to utilize to the full the resources of the compounding art.

ACCELERATORS. All the well known accelerators both mild and high-powered types are well established in current use. Those specially adapted for use with reclaims are especially favored in competitive compounding.

ANILINE. There is an excellent seasonal demand for aniline. Stocks are moving steadily and prices remain firm.

ANTI-OXIDANTS. Rubber manufacturers in all lines are interested in demonstrating the practical advantages offered by the use of anti-oxidants, which ultimately will find place because of their protective value in rubber for all uses.

BENZOL. The market is brisk and stocks are sold ahead. The 90 per cent grade has been advanced 1 cent a gallon but the pure grade price was not advanced.

CARBON BLACK. Carbon black is purchased mostly on contract by the rubber industry. There is a steady demand, however, for spot with but little surplus in the market.

CLAY. The demand is at the height of the year's activity and increasing. The leading producer has added a third grinding and drying unit at the mine increasing output 50 per cent while his shipping facilities are improved by the establishment of a second railway freight station.

LITHARGE. The steady advance in pig lead finally effected an advance of litharge by ½ cent a pound. In the rubber trade demand is fair and consumption seasonal.

LITHOPONE. The price remains unchanged, held down by competition in spite of the rise in metallic zinc.

MINERAL RUBBER. This material serves as a popular substitute for rubber and as such its movement is greatly stimulated by the high prices for crude. It is estimated that the rubber industry in the United States and Canada consumes 100 cars monthly.

SOLVENT NAPHTHA. Early in the month the price moved up 2 cents a gallon, followed by a second increase of the same amount due to the heavy demand and shortage of stocks.

SUBLIMED LEAD. In the pigment market sublimed lead was active. Early in the month the price advanced ½ cent a pound.

THERMATOMIC CARBON. Facilities for doubling the production of thermatomic carbon are now in progress of erection, necessitated by the growing demand for this product by rubber goods manufacturers in many lines.

ZINC OXIDE. The first of the month the quotation on zinc oxide rose ½ cent a pound because of the advance in spelter values. The market was firm at the new level and trade fair.

New York Quotations

November 25, 1925

Accelerators, Inorganic

Lead, carbonate	lb.	$0.11¼	@	
Lead, red	lb.	.12¾	@	
sublimed blue	lb.	.10½	@	
sublimed white	lb.	.10½	@	
Lime	ton	28.00	@	40.00
R. M. hydrated (fact'y)	ton	15.00	@	
Litharge	lb.	.12¼	@	
Magnesia, carbonate (fact'y)	lb	.06½	@	.07½
calcined, light (bbls.)	lb.	.24	@	.25
calcined, md. light (bbls.)	lb.	.15	@	
calcined, extra light (bbls.)	lb.	.40	@	
calcined, heavy (bbls.)	lb.	.04½	@	.05½
magnesium, carb., light (bags)	lb.	.06	@	.06¾
Orange mineral A.A.A	lb.	.15	@	
Rubber lead No. 4	lb.	.30	@	

Accelerators, Organic

A-7	lb.	.70	@	.90
A-19	lb.	.75	@	.95
Aldehyde ammonia	lb.	.93	@	.95
Aniline (factory)	lb.	.17	@	.17½
B. B.	lb.	1.07	@	
Benzidine (base)	lb.	.75	@	.78
D. P. G. salt	lb.	.89	@	
Diethyl amine	lb.	2.10	@	
Dimethyl amine	lb.	2.75	@	
Dimethylaniline	lb.	.58	@	.60
Di-ortho-tolylguanidine	lb.	1.13	@	
Di-ortho-tolylthiourea	lb.		@	
Diphenyl guanidine	lb.	.98	@	
Ethyl aniline	lb.	1.10	@	
Ethylidene aniline	lb.	.65	@	
Ethyl-o-toluidine	lb.	1.10	@	
Excellerex	lb.	.40	@	.45
Formaldehyde aniline	lb.	.42	@	
Grasselerator 808	lb.	1.50	@	
Hexamethylene tetramine	lb.	.80	@	.82½
Lead oleate (fact'y)	lb.	.18	@	
Methylene aniline	lb.	.33	@	.40
Methylenedianilide	lb.		@	
No. 999	lb.	.17½	@	
No. 552 Piperidine piperidyl-dithio-carbamate	lb.	4.80	@	5.00
Para-nitrosodimethylaniline	lb.		@	
Paraphenylene diamine	lb		@	
Quinodine	lb.	.40	@	
Shawinigan paraldehyde	lb.		@	
Super-sulphur, No. 1	lb.	.50	@	
No. 2	lb.	.18	@	.25
Tenailac No. 41	lb.	.65	@	
Thiocarbanilide	lb.	.25	@	.32
Triphenylguanidine	lb.	.73	@	
Tuads	lb.	4.50	@	5.00
Vulcone	lb.		@	
Zimate	lb.	5.00	@	

Acids

Acetic 28% (bbls.)	100 lb.	$3.38	@	
glacial (carboys)	lb.	.16	@	
Oleic (bbls.)	lb.	.11½	@	.12
Cresylic (97% straw color)	gal.	.55	@	.60
(95% dark)	gal.	.55	@	.60
Sulphuric, 66° (carboys)	lb.	.02	@	

Alkalies

Caustic soda	100 lbs.	3.10	@	4.75
flake, 76% (factory)	100 lbs.	3.45	@	
solid, 76% (factory)	100 lbs.	3.10	@	

Anti Oxidants

V. G. B.	lb.	.70	@	

Colors

BLACK

Bone	lb.	.05½	@	.11
Carbon:				
A. & W. nonfli	lb.	.40	@	
Aerfloted arrow	lb.	.08½	@	.12½
Compressed	lb.	.08	@	.12½
Uncompressed	lb.	.08	@	.12
Microncx	lb.	.09	@	.13
Drop	lb.	.06	@	.10
Lampblack	lb.	.12	@	.50
Shawinigan	lb.		@	
Thermatomic carbon	lb.	.05	@	

BLUE

A. & W. blue	lb.	2.00	@	4.00
Prussian	lb.	.34	@	.35
Ultramarine	lb.	.08	@	.35

BROWN

Sienna, Italian	lb.	.06½	@	.07½
Umber, Turkey	lb.	.04	@	.06

GREEN

A. & W. green	lb.	2.80	@	3.00
Chrome, light	lb.	.28	@	.30
medium	lb.	.30	@	.32
dark	lb.	.31	@	.34
commercial	lb.	.09	@	.10
Oxide of chromium	lb.	.32	@	.38
T. K.	lb.	.35	@	.40

RED

Antimony, golden	lb.	$0.16	@	
golden T. K.	lb.	.18	@	.21
pentasulphide	lb.	.33	@	.35
golden R.M.P. No. 7	lb.	.20	@	
golden 15/17 % G. E.	lb.	.26	@	.30
Antimony, sulph. crimson	lb.	.27	@	
crimson T. K., 15/17%	lb.	.40	@	.43
crimson T. K., S/F	lb.	.48	@	.50
crimson, 15/17% G. E.	lb.	.42	@	.45
crimson, R.M.P. No. 3	lb.	.50	@	
7-A	lb.	.37	@	
Z-2	lb.	.20	@	
Antimony				
A. & W. red (4 shades)	lb.	1.50	@	3.00
purple	lb.	2.00	@	3.00
Sulphuret vermilion	lb.	.50	@	
Iron oxides				
bright red pure domestic	lb.	.12	@	
bright red pure English	lb.	.11	@	.14
bright red reduced English	lb.	.07½	@	.11
bright red reduced domestic	lb.	.10	@	
Indian (maroon), red pure domestic	lb.	.11	@	
Indian (maroon), red pure English	lb.	.09½	@	.12
Indian (maroon), red reduced English	lb.	.07½	@	.09
Indian (maroon), red reduced domestic	lb.	.08	@	.10
Oximony	lb.	.13¼	@	
Spanish red oxide	lb.	.02½	@	.04
Venetian reds	lb.	.02½	@	.05
Yellow oxide pure	lb.	.08	@	.10
Pará toner	lb.	1.00	@	1.15
Toluidine toner	lb.	2.00	@	2.25
Vermilion, English quick-silver	lb.	1.40	@	1.60

WHITE

Albalith	lb.	.05½	@	.06½
Aluminum bronze	lb.	.55	@	1.20
Lithopone	lb.	.06	@	.07
Azolith	lb.	.05½	@	.06¼
Sterling	lb.	.05½	@	.06½
Zinc oxide				
AAA (lead free)	lb.	.07¼	@	.07¾
Azo (factory):				
ZZZ (lead free)	lb.	.07¼	@	.07¾
ZZ (5% leaded)	lb.	.06½	@	.07¼
Z (8% leaded)	lb.	.08	@	.08½

Chemical Market—*Continued*

New York Quotations

November 25, 1925

Colors

WHITE—*Continued*		
French process, Florence brand		
Green seal	lb.	$0.11½@$0.11⅝
Red seal	lb.	.10¾@ .10⅞
White seal	lb.	.12⅜@ .12⅝
Horse Head brands		
Selected	lb.	.07¾@ .08¼
Special	lb.	.07¾@ .08¼
XX red	lb.	.07¾@ .07¾
Leaded brands		
Lehigh	lb.	.08 @ .08½
Standard	lb.	.06⅞@ .07⅜
Sterling	lb.	.08 @ .08½
Superior	lb.	.08 @ .08½
Palmerton process		
Kadox, black	lb.	.10⅜@ .11⅝
blue	lb.	.09⅞@ .10⅜
red	lb.	.08⅞@ .09⅛
YELLOW		
A. & W. yellow	lb.	2.50 @ 4.00
Arsenic	lb.	.70 @ .75
Chrome	lb.	.17½@ .18½
Ochre, domestic	lb.	.02½@ .03½
imported	lb.	.03½@ .04½

Compounding Ingredients

Aluminum flake (sacks c.l.)	ton	21.85 @
(sacks l.c.l.)	ton	24.50 @
Aluminum silicate	ton	23.00 @25.00
Ammonia carbonate	lb.	.17½@ .19
Are-o-sole	ton	10.00 @14.00
Asbestine	ton	13.50 @16.50
Barium, carbonate (bbl.)	ton	54.00 @56.00
dust	lb.	.05 @ .06
Barytes, imported	ton	28.00 @32.00
water ground and floated	ton	23.00 @25.00
Basofor	lb.	.04½@
Blanc fixe, dry	ton	75.00 @85.00
pulp	ton	55.00 @60.00
Chalk	ton	4.75 @ 5.00
Clay, Dixie	ton	20.00 @
Blue ribbon (c. l. fcty.)	ton	14.00 @
Blue Ridge, dark	ton	9.00 @
light	ton	12.00 @
Catalpo (facty.)	ton	35.00 @40.00
China	lb.	.01¾@ .02½
English	lb.	.02 @ .02½
Langford	ton	12.00 @
White floss	ton	18.00 @
Cotton flock, black	lb.	.11 @ .12
light-colored	lb.	.12 @ .13½
white	lb.	.16 @ .24
Cotton linters clean mill run	lb.	.05 @
Glue, high grade	lb.	.20 @ .29
medium	lb.	.18 @ .24
low grade	lb.	.14 @ .17
Graphite, flake	lb.	.06½@ .12
Mica, amber (fact'y)	lb.	.05 @
water ground	lb.	.07 @ .08
Pumice stone, powd	lb.	.03 @ .05
Rotten stone (bbls.)	lb.	.02½@ .04½
State flour (fact'y c. l.)	ton	8.00 @ 9.00
Soap bark, cut	lb.	.09¼@ .09½
Soapstone	ton	15.00 @22.00
Sodium bicarb. (bbls.) 100 lbs.		2.00 @
Starch, pcwd. corn		
Buffalo (bbls.) 100 lbs.		3.49 @ 3.59
(bags) 100 lbs.		3.22 @ 3.32
Talc, domestic	ton	16.00 @18.00
French	ton	38.00 @45.00
Terra blanche	ton	25.00 @30.00

Compounding Ingredients—*Continued*

Whiting, domestic No. 33	ton	$10.00 @
chalk, L. H. B	ton	17.00 @25.00
commercial (facty.) 100 lbs.		.90 @ 1.00
English, cliffstone 100 lbs.		1.60 @ 3.50
gilders (bolted) 100 lbs.		1.25 @ 1.35
Nelco	ton	12.00 @22.50
Paris White 100 lbs.		1.60 @ 2.00
Perfection	ton	13.00 @18.00
Quaker	ton	13.00 @
Snow-white, E. L. B.	ton	13.00 @18.00
Sussex	ton	8.00 @
Westminster Brand	ton	@
Witco (c.l.) (fact'y)	ton	12.00 @
Wood pulp, XXX (facty.)	ton	35.00 @
X (facty.)	ton	25.00 @

Mineral Rubber

Genasco (facty.)	ton	50.00 @52.00
Gilsonite (fact'y)	ton	37.14 @39.65
Granulated M. R.	ton	33.00 @38.00
Hydrocarbon, hard	ton	29.00 @35.00
Hydrocarbon, soft	ton	29.00 @35.00
Mineral flour	ton	@
Ohmlac Kapak, M-R	ton	70.00 @80.00
K-4	ton	175.00 @
320/340 m. p. hydrocarbon	ton	47.00 @52.00
300/310 m. p. hydrocarbon	ton	42.00 @47.00
Paradura (fact'y)	ton	70.00 @72.50
Pioneer, M. R., solid (fac.)	ton	42.00 @44.00
M. R. granular	ton	52.00 @54.00
Robertson, M. R. solid (facty.)	ton	35.00 @75.00
M. R. gran. (facty.)	ton	42.00 @80.00

Oils (Softeners)

Avoilas compound	lb.	.12 @ .14
Castor, No. 1, U. S. P.	lb.	.15 @
No. 3, U. S. P.	lb.	.15 @
Corn, crude (bbls.)	lb.	.11½@
Cotton, summer yellow	lb.	.11 @
Cycline	gal.	.04 @ .05
Glycerine	lb.	.20 @ .20½
Linseed, raw	gal.	1.03 @
Liquid rubber	lb.	.12 @
Moldrite	lb.	.05 @ .06
Palm lagos	lb.	.09 @
Palm, niger	lb.	.08⅞@
Parra M. R. flux	lb.	.06 @ .07
Peanut, crude	lb.	.12 @
refined	lb.	.14 @
Petrolatum, standard	lb.	.06 @ .08
Petrolatum, sticky	lb.	.08 @ .10
Pine, steam distilled	gal.	.68 @
Rapeseed, refined	gal.	1.00 @
blown	gal.	1.18 @
Rosin	gal.	.64 @
Soya bean	lb.	.14¼@ .14½
Synthecite	lb.	.06 @
Tar	gal.	.37½@
Woburn	lb.	.05½@

Resins and Pitches

Pitch, Burgundy	lb.	$0.07½@
coal tar	lb.	.01⅝@
Fluxol hardwood	lb.	.02 @ .04
pine tar	lb.	.04 @
ponto	lb.	.07½@
Rosin, K (bbl.) 280 lbs.		16.50 @
strained (bbl.) 280 lbs.		16.25 @
Shellac, fine orange	lb.	.70 @
Tar, pine, retort	bbl.	18.00 @
kiln	bbl.	17.00 @

Solvents

Benzol (90%, 7.21 lbs. gal.) pure	gal.	.28 @
Carbon bisulphide (10.81 lbs. gal.) 99.9% pure (drums)	lb.	.06½@ .07½
tetrachloride (13.28 lbs. gal.) 99.7% pure (drums)	lb.	.07¼@ .12
Gasoline No. 303		
Tankcars	gal.	.21 @
Drums, c. l.	gal.	.24 @
Drums, l. c. l.	gal.	.27 @
Motor gas (steel bbls.)	gal.	.19 @ .20
Naphtha		
68° Bé., 122°, 324°	gal.	.20 @
70° Bé., 114°, 314°	gal.	.21 @
71° Bé., 112°, 304°	gal.	.22 @
Turpentine, spirits	gal.	1.16 @
wood, steam distilled	gal.	1.00 @

Substitutes

Black	lb.	.08½@ .15
Brown	lb.	.09 @ .16
White	lb.	.09 @ .17
Brown T. K.	lb.	.10½@ .14
White T. K.	lb.	.13½@ .16½

Vulcanizing Ingredients

Sulphur chloride (drums)	lb	.06 @
Sulphur, soft rubber, 100% pure (c.l.) 100 lbs.		2.35 @ 2.60
(l.c.l.) 100 lbs.		2.65 @ 2.90
Sulphur, Brooklyn brands		
Refined velvet (bbls.) 240 lbs.		2.90 @ 3.15
(bags) 150 lbs.		2.35 @ 2.90
Superfine flour (bbls.) 210 lbs.		2.60 @ 2.90
(bags) 100 lbs.		2.20 @ 2.50
rubber makers	lb.	.02¾@ .03
Tire brand, superfine 100 lbs.		2.00 @ 2.25
Tube brand, velvet 100 lbs.		2.40 @ 2.65

(See also Colors—Antimony)

Waxes

Wax, beeswax, white, com.	lb.	.55 @
carnauba	lb.	.30 @ .40
ceresine, white	lb.	.12 @
montan	lb.	.06 @ .06½
ozokerite, black	lb.	.30 @
green	lb.	.32 @
Paraffin		
122/124 white crude scale	lb.	.05¼@
124/126 white crude scale	lb.	.05⅞@
120/122 fully refined	lb.	.06 @
125/127 fully refined	lb.	.06¼@

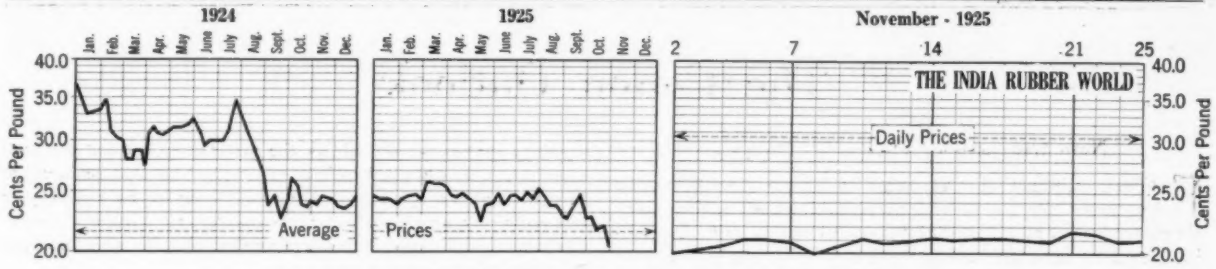
Inventory—Production—Shipments of Pneumatic Casings—Inner Tubes—Solid Tires—Rubber and Fabric Consumption

	High Pressure Pneumatic Casings						Balloon Casings			Solid and Cushion Tires		
	Cord			Fabric								
1925	Inventory	Production	Total Shipments	Inventory	Production	Total Shipments	Inventory	Production	Total Shipments	Inventory	Production	Total Shipments
January	3,562,701	1,999,410	1,618,169	1,498,309	1,009,201	908,260	901,031	546,146	563,315	196,774	52,464	44,814
February	4,108,082	1,996,488	1,458,136	1,710,425	944,168	718,626	877,851	740,106	764,874	191,733	53,058	55,646
March	4,369,673	2,000,939	1,708,352	1,836,228	738,625	616,350	926,303	1,217,367	1,168,277	175,010	56,751	69,833
April	4,035,061	1,816,641	2,012,794	1,700,699	562,449	661,907	1,080,594	1,626,369	1,448,974	166,389	66,059	70,950
May	3,610,304	1,815,969	2,266,073	1,461,301	480,339	714,728	1,386,840	1,803,607	1,484,877	156,175	75,473	86,785
June	2,870,827	1,804,704	2,610,609	1,033,840	439,397	869,058	1,527,684	1,729,121	1,573,062	153,098	85,036	90,942
July	2,502,055	2,181,645	2,479,160	658,814	447,145	809,290	1,654,629	1,561,806	1,434,981	152,587	75,228	74,715
August	2,895,254	2,409,070	1,999,548	527,108	377,813	516,985	2,023,580	1,418,347	1,053,625	170,419	75,166	57,117
September	3,227,418	2,173,276	1,826,432	482,179	347,037	429,438	2,051,377	1,235,022	1,171,157	181,240	65,309	51,633

	High Pressure Inner Tubes			Balloon Inner Tubes		
1925	Inventory	Production	Total Shipments	Inventory	Production	Total Shipments
January	7,756,467	4,171,812	3,643,841	920,728	585,243	528,533
February	8,815,514	3,977,721	2,989,606	951,539	776,855	738,734
March	9,540,993	3,895,688	3,120,624	1,135,649	1,354,434	1,162,910
April	8,726,603	3,259,524	3,556,258	1,486,546	1,879,007	1,471,976
May	7,535,418	3,225,218	4,513,460	1,840,425	1,908,973	1,516,774
June	5,910,609	3,566,099	5,173,477	1,896,178	1,640,465	1,600,410
July	4,677,647	4,297,495	5,327,295	1,798,919	1,360,719	1,497,747
August	4,920,360	4,436,578	4,102,160	1,982,971	1,276,717	1,089,752
September	5,351,879	4,135,336	3,801,442	2,110,958	1,304,857	1,197,397

Compiled from Rubber Association figures.

	Cotton and Rubber Consumption in casings, tubes, solid and cushion tires	
1925	Cotton Fabric Pounds	Crude Rubber Pounds
January	12,310,822	42,170,869
February	13,363,986	41,720,847
March	15,040,609	46,365,630
April	14,902,337	48,154,633
May	14,984,561	47,639,298
June	15,840,498	53,366,781
July	16,013,761	53,197,164
August	15,758,123	52,170,657
September	14,025,320	46,745,268



Ratio Graph of New York Daily Prices of Spot Middling Upland Cotton

The Market for Cotton and Other Fabrics

New York

AMERICAN COTTON. The decline of the market on the government crop report of October 18, indicating this season's yield as 15,226,000 bales, was checked below the 20 cent level turning steady at 18 cents. Hedge selling was active on the decline below 19 cents. The crop figures reported November 1, indicating 15,386,000 bales was a general surprise and caused a drop for spot middlings of 1 cent a pound.

Some authorities think that 1,000,000 bales of this year's crop may prove untenderable, still others consider that double that quantity are unsuitable for contract delivery, due to the fact that a large proportion of the baled crop is damaged by exposure to the elements.

Thus in spite of a crop approaching 15,386,000 bales there will be actually 13-13½ million bales of standard quality. This being the case sometime during the coming season it may be worth higher prices than those now prevailing. The situation ultimately leads to the conclusion that on the basis of quality it is possible to end up a season which produced a large number of bales but which caused an actual scarcity in the desirable quality.

The government's crop figures of November 14 set the crop at 88,000 bales lower than on November 1, and forecast 15,298,000 bales. As a long range proposition, more attention was paid to the question of grades and probable trade requirements.

PIMA COTTON. The Arizona Pima crop continues to mature slowly and high grades are scarce. No 2 Pimas are selling at a considerable premium over first quality Sakel.

EGYPTIAN COTTON. Egyptians for the time being are apparently marking time with a tendency to become lower in price. Sakel and Uppers are both in good supply and the Alexandria stock is continually increasing in amount. Therefore, no sensational rise need be expected throughout the balance of the present season. On the other hand, buying by spinners of the world is not at all satisfactory in volume and is more or less on a hand to mouth basis. Medium Uppers are worth about 31 cents and Medium Sakels about 39 cents.

Cotton Fabrics

DUCKS, DRILLS AND OSNABURGS. The market is strong, demand good and early deliveries are being steadily sought. The best judges of market conditions are now engaging their forward requirements for the first quarter of 1926, and in many instances covering needs of the first half year.

RAINCOAT FABRICS. Business is well maintained. Buying is for spot delivery only, or 3 to 4 weeks at the outside. There is no tendency to make purchases for January-March delivery.

SHEETINGS. The market is fairly strong considering the large cotton crop and limited buying. Forty-inch, 3.60 sheeting is well sold up into next year. Fair business has been placed on this number for January to March delivery.

TIRE FABRICS. The November market was quite active. In the first half from 1,500,000 to 2,000,000 pounds of cord were placed and a like amount of chafers and square woven fabric. Cheaper grades of fabric seem to be in demand for the first quarter of next year, principally due to the fact that rubber companies are now stocking the tire dealers. The indications are that the demand for cheaper grade tires on replacement business for next spring will be fairly heavy due to high prices caused by high priced crude rubber. The impression is that dealers will prefer to stock cheaper tires because that means more tires and a more complete line of sizes for the same amount of capital invested. Purchases of fabric indicate that a large quantity of square woven fabric tires in the small sizes will be made for next year. Fabric prices at this time are based on present levels of raw cotton. Any reductions in fabric prices will have to follow reductions in the raw cotton market.

New York Quotations

November 25, 1925

Drills

38-inch 2.00-yard	*yard*	$0.20 @
40-inch 3.47-yard		.11½ @
52-inch 1.90-yard		.21½ @
60-inch 1.52-yard		.27 @

Ducks

38-inch 2.00-yard	*yard*	.21 @
40-inch 1.47-yard		.28½ @
72-inch 16.66-ounce		.50 @
72-inch 17.21-ounce		.51½ @

MECHANICAL

Hose and belting	*pound*	.39 @
Specials		.43 @

TENNIS

52-inch 1.35-yard	*yard*	.32½ @

Hollands

DEAD FINISH

Standard, 37-inch	*yard*	.19½ @
42-inch		.23½ @

RED SEAL

36-inch		.18 @
40-inch		.19 @
50-inch		.30 @

FLAT FINISH

Imperial, 36-inch		.15½ @
40-inch		.17½ @

GOLD SEAL

40-inch		$0.29 @

Osnaburgs

40-inch 2.35-yard	*yard*	.17½ @
40-inch 2.48-yard		.16⅞ @
40-inch 3.00-yard		.14 @
37-inch 2.42-yard		.17½ @

Raincoat Fabrics

COTTON

Bombazine 64 x 60	*yard*	.13 @
Bombazine 60 x 48		.12 @
Plaids 60 x 48		.12½ @
Plaids 56 x 44		.12¼ @
Surface prints 60 x 48		.13 @
Surface prints 64 x 60		.14 @

Sheetings, 40-inch

40 x 48, 2.50-yard	*yard*	.14½ @
48 x 48, 2.85-yard		.12½ @
64 x 68, 3.15-yard		.13½ @
56 x 60, 3.60-yard		.13¼ @
48 x 44 3.75-yard		.11 @

Sheetings, 36-inch

48 x 48, 5.00-yard	*yard*	$0.08½ @
40 x 40, 6.15-yard		.06⅝ @

Tire Fabrics

SQUARE WOVEN 17¼-ounce

Egyptian, karded	*pound*	.56 @ .57
Peeler, karded		.46 @ .47

CORD 23/5/3

Egyptian, combed	*pound*	.68 @ .70
Egyptian, karded		.57 @ .58
Peeler, combed, 1 1/16-in.		.68 @ .70
Peeler karded, 1 1/16-in.		.48 @ .49

CORD 13/3/3

Peeler karded	*pound*	.48 @

LENO BREAKER

8-oz. Peeler, karded	*pound*	.45 @
10-oz. Peeler, karded		.45 @

CHAFER

8.25-oz. Peeler, karded (2 ply)	*pound*	.46 @ .47
9.5 oz. Peeler, karded (4 ply)		.47 @ .48
12-oz. Peeler, karded		.50 @
14-oz. Peeler, karded		.47 @ .48

The Cotton Outlook

New Estimate of Cotton Production

FURTHER estiates as of November 14 by the Crop Reporting Bureau of the Department of Agriculture place this year's cotton production at 15,298,000 bales of 500 pounds each. According to the Census Bureau, this year's crop of cotton ginned prior to November 14 totaled 12,249,935 running bales, counting round as half bales and excluding linters. This compares with 11,162,235 bales to that date last year, and 8,369,498 in 1923.

Should the remainder of the season prove more or less favorable for the crop, this preliminary report is subject to change. Last year on November 1, the estimate made by the Government proved to be 6 per cent less than final ginnings. Actual production for the year was 13,627,000 bales as against 10,139,671 in 1923. In 1922 the crop was 9,762,069 bales; in 1921 it was 7,953,641 bales, and in 1920 it was 13,439,603 bales. Indications now point to a yield of 165.5 pounds of lint cotton per harvested acre. Probable yield, as of November 1 indications, were 166.4 pounds per acre as against 157.4 pounds actual final yield last year; 130.6 pounds in 1923; 141.3 pounds in 1922; 124.5 pounds in 1921 and 178.4 pounds in 1920.

Larger Stocks of Raw Material

Present conditions in the industry are summarized in an editorial entitled "Cotton" appearing recently in the *Journal of Commerce*, which states in part:

Figures concerning stocks, consumption and exports of cotton during the month of October are of very real concern to a wide variety of interests in the community. For one thing, they demonstrate clearly enough that raw cotton prices are lower than they were some months ago, not by reason of any tendency on the part of consumers to withhold their purchases, but, on the contrary, despite liberal laying in of stocks of the raw material. Stocks both in this country and in Great Britain, exports and actual consumption have been and are substantially larger than last year.

Here are some of the leading pertinent facts. Cotton crops not only in this country but the world over have this year been exceptionally large. Not for a good many years has the world been in possession of the supply of this raw material that it enjoys at this time. In some places, notably in the Far East, which is of such vital interest to British textile mills, the stocks on hand are distinctly large. If we are to arrive at a well informed opinion concerning the ability of the cotton textile manufacturers to absorb the large crops of this year careful account must be taken of the probable demand of ultimate consumers of cotton manufactures.

Whether with goods prices on the basis of say 20 cent raw cotton the consumers of the world can be induced to absorb the larger part of the world supply of raw cotton, now estimated in conservative quarters to be not far from 33,000,000 bales, is a question well worth some careful thought.

Increasing Exports and Consumption

October exports, totaling 1,421,482 bales, were larger than for any month in more than ten years, according to statistics now being issued by the Bureau of the Census. In February, 1915, 1,501,701 bales were shipped from American ports, while the only other occasions when such exports exceeded the 1,500,000 figure were October and November, 1913.

Domestic consumption, for October, estimated by the Census Bureau at 543,679 bales, was also a surprise to the industry. This figure compares with 483,266 for September, and with 532,629 for October, 1924. The mills of the Carolinas and Georgia were hampered by the serious drought of the past season, so that the total consumption was larger than was expected. If cotton continues at its present price or goes lower, the consumption for the coming year will establish a new record, it is believed. On the basis of the present low prices, the mills have a better opportunity for profit than has been the case in several years.

Cotton Exports to Britain Increase

In a report of the Liverpool Cotton Association received by the Department of Commerce the statement is made that during the four weeks ended October 23 the total deliveries of raw cotton to British spinners aggregated 267,000 bales, 174,000 bales being American cotton, as compared with 221,000 bales, 143,000 bales American cotton, for the preceding four weeks period. Compared with the previous year the takings of American cotton are said to have increased by almost 100,000 bales or 788,000 bales for the first quarter of the current cotton year. The Lancashire mill owners are apparently greatly pleased by the cotton crop reports made by the Department of Agriculture, hoping that the large figures will indicate a further reduction in the price of the raw material.

Sea Island Cotton Disappearing

Sea Island cotton, grown on the islands off the coasts of Florida, Georgia and South Carolina, once represented the finest cotton grown, having a staple 1⅜ to 2 inches long. While this has entirely disappeared due to the depredations of the boll weevil, a small crop of 700 bales was grown last year from seed planted on the coast of the mainland and sold as Sea Island. Still other types of long cotton were the Mead variety, intended to take the place of the Sea Island crops, while of the cotton raised in Egypt the Brown Egyptian, the White Egyptian, and Ashmouni or Uppers are the best known. Brazil cotton is similar to American staple but is harsher and of lower grade. Of the large Indian crop only a small proportion is imported by England and America.

PARCEL POST EXPORTS OF RUBBER GOODS

In 1924—the first year in which parcel post shipments were included in United States export statistics—the parcel post exports of rubber goods were valued at $671,260, or 1.65 per cent of the $40,630,795 worth of rubber goods exported. In this trade rubber toys, balls and balloons led, such shipments, at $373,715, being 27.55 per cent of the quantity and 38.11 per cent of the value. Miscellaneous varieties of druggists' rubber sundries followed, at $82,280, or 9.93 per cent of the total value of rubber goods exported. Hard rubber goods, other than for electrical purposes, ranked next in importance as parcel post shipments, with a value of $66,615, or 11.04 per cent of the total value of such exports; while there was also a considerable parcel post business in goods included as "rubber manufactures n. e. s," such as rubber aprons, dress shields, rubber reducing corsets, infants' sanitary garments, etc. By this method there were also some important shipments of bathing caps, and rubber heels and soles, although it is somewhat surprising that the parcel post trade in tire repair materials was not greater.—*Commerce Reports.*

BLUE RIDGE C. P. RED OXIDE

Blue Ridge C. P. Red is a pure brilliant oxide of iron obtained from a deposit located in Lehigh Gap, Pennsylvania, where it is prepared as a pigment for rubber compounding for red goods of every description. Its purity, fineness and brilliant color make it specially desirable in high grade red inner tubes.

Metal Market Review

New York

Most of the markets are comparatively quiet, although there is considerable activity in tin, the market being called firm abroad and steady here. Steel production is again forging ahead and is said to be approaching, in leading districts, a condition of practically maximum operation.

ALUMINUM. Virgin metal, 98 to 99 per cent pure, is being quoted at 27 to 28 cents a pound. It is stated that the Aluminum Company of America announced in October an advance for this metal of 1 cent a pound.

ANTIMONY. The scarcity of Chinese metal continues, with spot prices at 20 cents, New York, duty paid.

COPPER. According to the American Bureau of Metal Statistics, the consumption of copper in the third quarter of 1925 was 194,000 net tons, compared with 198,000 net tons in the first quarter of the year, and 193,500 in the corresponding period of last year. The same organization estimates the monthly average in 1925 for the world's copper output at 127,617 tons, as compared with 113,016 net tons a month in 1923. Producers in general are hopeful, as they consider the industry statistically strong.

LEAD. Prices for this metal remain unchanged, and the market is steady and fairly quiet. Lead is being strongly held by producers, particularly in the Middle West, and premiums for prompt tonnages are still the rule.

STEEL. In all but the early summer months both production and consumption of steel have been heavy, and indications are that the output of ingots will approximate that of the year 1923, when 43,486,000 tons were produced. The *Iron Trade Review* states that November represents a definite record, and that "the industry at large is making steel at an annual rate of better than 47,000,000 tons."

TIN. Prices for this metal are too high to allow many transactions. A good deal of tin is being shipped to Great Britain in view of the much better demand for tin plate.

ZINC. Prices for zinc have of late shown a steady decline, although the market is said to be stronger than ever statistically. Some are predicting much higher values.

Basic Metals

November 23, 1925

	Cents per pound	
Aluminum, virgin, 98@99 per cent	28.00	@29.00
Antimony	20.00	@20.25
Copper—Lake, spot	14.50	@14.625
Electrolytic, spot	14.375	@14.50
Castings, refinery	14.125	@
Lead, spot, New York	9.75	@ 9.85
Lead, spot, East St. Louis	9.50	@ 9.60
Tin, spot	63.375	@
Zinc, spot, New York	9.05	@ 9.10
Zinc, spot, East St. Louis	8.70	@ 8.75

Steel Wire

BASE PRICE* ON NO. 9 GAGE AND COARSER

	Cents per pound	
Bright basic	4.10	@ 4.25
Annealed soft	4.35	@ 4.50
Galvanized annealed	5.00	@ 5.15
Coppered basic	5.00	@ 5.15
Tinned soft Bessemer	6.00	@ 6.15

*Regular extras for lighter gage.

Copper Wire

BASE PRICE F. O. B. FACTORY

	Cents per pound	
Bare copper wire	17.125	@
No. 6 B. & S. gage	17.125	@
No. 8 B. & S. gage	17.125	@
No. 14 B. & S. gage	18.125	@

DURING THE FIRST EIGHT MONTHS OF 1925 THE UNITED KINGDOM has imported from the United States 120,010 pneumatic casings for automobiles, value $1,380,957. The largest single item for the year was the August purchase, 23,249 casings, value $283,160.

Report of Rims Inspected and Approved by The Tire and Rim Association of America, Inc.

Size	October, 1925 Number	October, 1925 Per Cent	First 10 Months 1925 Number	First 10 Months 1925 Per Cent
Clincher Rims				
24 x 3	1,553	0.1	12,089	0.1
26 x 3	7,248	0.3	80,714	0.4
28 x 3	285	0.0	2,866	0.0
30 x 3	14,602	0.6	212,043	1.0
30 x 3½	464,764	18.8	4,185,868	18.4
31 x 4	26,343	1.0	590,534	2.7
Straightside Rims (Pass.)				
25 x 3½	.....	...	460	0.0
27 x 3½	210	0.0	2,582	0.0
28 x 3½*	1,074,446	42.1	7,028,232	31.7
29 x 3½*	.....	...	144,390	0.7
30 x 3½	26,566	1.0	565,722	2.5
32 x 3½	4,229	0.2	24,958	0.1
28 x 4*	264,371	10.4	2,662,717	12.4
29 x 4*	147,155	5.1	1,393,082	6.3
30 x 4*	2,076	0.1	289,540	1.3
31 x 4	.....	...	1,515	0.0
32 x 4	29,767	1.2	262,405	1.2
33 x 4	6,455	0.3	24,617	0.1
34 x 4	256	0.0	759	0.0
29 x 4½*	74,957	2.9	479,662	2.6
30 x 4½*	169,440	6.6	1,424,032	6.4
31 x 4½*	1,505	0.1	247,481	1.1
32 x 4½	54,262	2.1	555,667	2.5
33 x 4½	.....	...	1,854	0.0
34 x 4½	6,715	0.3	90,026	0.4
36 x 4½	.....	...	154	0.0
30 x 5*	45,871	1.8	340,211	1.1
31 x 5*	28,679	1.1	425,877	1.9
33 x 6*	9,946	0.4	68,531	0.3
Truck Rims				
30 x 5	51,342	2.0	732,644	3.3
34 x 5	6,519	0.3	92,652	0.4
32 x 6	19,489	0.8	134,875	0.6
36 x 6	9,293	0.4	62,929	0.3
34 x 7	804	0.0	21,297	0.1
38 x 7	.....	...	7,211	0.0
36 x 8	672	0.0	9,899	0.0
40 x 8	611	0.0	11,193	0.0
40 x 10	.....	...	606	0.0
44 x 10	.....	...	571	0.0
Totals	2,550,431	100.0	22,192,465	100.0

	Per Cent		Per Cent
Motorcycle	0.4	Motorcycle	0.5
Clincher	20.4	Clincher	22.1
Balloon	71.6	Balloon	65.8
Regular S. S.	4.1	Regular S. S.	6.8
Truck 20"	2.8	Truck 20"	4.1
Truck 24"	0.7	Truck 24"	0.7

*Balloon casings.

TIRE DEALERS' STOCKS AND BUYING POWER

The census of tire dealers' stocks taken by the United States Department of Commerce as of October 1, shows that dealers are not carrying excessively heavy stocks for this season of the year. Considering the time of the year and the large variety of balloon tire sizes now necessary, it was figured that a fair average of stocks would be in the neighborhood of 75 to 80 casings per dealer, making total dealers' stocks in the country approximately 10,000,000. The so-called "buying power" of the dealers in 1926 will reach $1,000,000,000, it is estimated. It is believed that sales of tire dealers next year will exceed 45,000,000 tires, compared with 40,000,000 this year, of which 60 per cent will be Ford sizes. Bus tire business will run into millions of dollars next year, when more than 100,000 buses will probably be in operation.

INDO-CHINA

Rubber exports from Indo-China are continuing to increase as may be seen from statistics for the first half of 1925, when exports of crude rubber were 37,471 quintals (quintal equals 220.4 pounds) against 30,830 pounds in 1924 and 25,320 pounds in 1925. Of the 1925 amount 36,833 quintals came from Cochin China and the bulk, 30,998 quintals, was shipped to France.

Among the imports for the period under review were 2,684 quintals of tires and tubes; this compares with 2,575 and 2,103 quintals for 1924 and 1923, respectively. France delivered 2,451 quintals in 1925 and other countries 233 quintals. Other rubber imports included rubber sheet—21 quintals; elastic fabrics—34 quintals; rubberized fabric—29 quintals; apparel, etc.—49 quintals; footwear—190 quintals, and belting, hose, etc.—346 quintals.

Exports of India Rubber Manufactures from the

EXPORTED TO	Belting	Hose	Packing	Thread	Boots		Shoes		Canvas Shoes with Rubber Soles		Soles and Heels	Waterproofed Auto Cloth and Rubberized Fabrics
EUROPE	Value	Value	Value	Value	Pairs	Value	Pairs	Value	Pairs	Value	Value	Value
Austria	$318	$354	.....	.....	4,827	$8,284	33,876	$56,578	1,840	$2,694	.....	$295
Azores and Madeira Islands	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belgium	9,634	5,410	$1,134	$4,828	768	2,850	480	417	.....	.....	.....	3,512
Bulgaria	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Czechoslovakia	196	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	478
Denmark	321	171	452	.....	14,924	35,846	16,387	15,462	1,283	1,138	.....	93
Finland	4,329	.....	.....	.....	.....	.....	.....	.....	.....	.....	$255	519
France	4,784	2,412	1,307	59,365	106	487	.....	.....	78	121	.....	133
Germany	.....	259	266	9,264	120	345	17,006	21,927	168	164	358	3,880
Greece	.....	1,035	.....	.....	.....	.....	.....	.....	.....	.....	.....	426
Hungary	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iceland & Faroe Islands	.....	.....	.....	.....	1,130	3,668	5,491	10,724	24	33	.....	.....
Italy	.....	800	.....	.....	942	2,624	3,657	2,851	456	355	.....	.....
Latvia	351	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Malta, Gozo and Cyprus Islands	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	33
Netherlands	1,063	241	3,756	.....	.....	.....	.....	.....	.....	.....	1,426	579
Norway	70	1,886	136	2,814	1,379	4,280	10,202	6,602	120	95	4,646	51
Poland and Danzig	75	.....	.....	.....	.....	.....	.....	.....	.....	.....	81	.....
Portugal	.....	.....	.....	.....	.....	.....	420	382	.....	.....	.....	569
Rumania	.....	89	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Russia in Europe	.....	.....	.....	2,948	.....	.....	.....	.....	.....	.....	.....	.....
Spain	63	57	.....	.....	684	2,439	1,111	805	.....	.....	15	.....
Sweden	5,289	1,308	68	2,609	2,862	7,638	204	362	.....	.....	1,609	667
Switzerland	1,096	1,360	.....	.....	1,452	2,942	28,166	27,645	.....	.....	.....	1,969
Turkey in Europe	.....	.....	13	.....	12	26	.....	.....	.....	.....	.....	.....
United Kingdom	18,263	16,252	4,886	72,613	73,754	136,937	49,876	31,656	1,966	2,053	4,149	29,409
Irish Free State	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	132
Yugoslavia, Albania, etc.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS, EUROPE	$45,852	$31,634	$12,018	$154,441	102,960	$208,366	166,876	$175,411	5,935	$6,653	$12,539	$42,745
NORTH AMERICA												
Canada	$9,597	$9,242	$10,915	$14,674	1,674	$4,667	9,698	$11,808	72	$102	$2,834	$44,351
British Honduras	1	.....	.....	.....	.....	.....	.....	.....	52	94	63	21
Costa Rica	.....	652	62	.....	12	45	12	8	612	539	1,327	.....
Guatemala	101	1,130	.....	1,221	.....	.....	.....	.....	564	364	1,751	.....
Honduras	101	440	456	.....	.....	.....	132	131	245	237	117	.....
Nicaragua	702	489	219	.....	.....	.....	24	21	552	471	1,678	143
Panama	273	920	1,011	.....	66	171	624	625	1,224	757	431	.....
Salvador	567	1,747	994	.....	.....	.....	.....	.....	583	400	1,590	.....
Greenland	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mexico	29,705	14,792	6,307	2,732	256	524	72	59	5,414	4,697	28,920	8,338
Miquelon & St. Pierre Islands	.....	.....	15	.....	652	2,135	.....	.....	.....	.....	.....	.....
Newfoundland and Labrador	998	936	115	.....	4,035	9,512	2,178	4,891	.....	.....	655	20
Bermuda	.....	.....	112	.....	50	97	122	63	335	389	.....	.....
Barbados	.....	.....	23	.....	.....	.....	36	36	144	85	.....	.....
Jamaica	47	229	42	.....	.....	.....	128	96	1,975	1,626	.....	232
Trinidad and Tobago	102	258	1,255	.....	.....	.....	192	273	2,976	2,070	137	384
Other British West Indies	172	51	237	.....	.....	.....	.....	.....	1,053	647	.....	92
Cuba	5,557	11,481	11,268	.....	120	383	15,426	7,498	38,913	21,858	8,024	2,169
Dominican Republic	2,491	847	1,318	.....	.....	.....	.....	.....	15,385	9,496	701	164
Dutch West Indies	.....	6,195	.....	.....	4	22	.....	.....	16,903	11,374	156	.....
French West Indies	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	165
Haiti	163	913	403	.....	.....	.....	.....	.....	1,802	1,552	650	288
Virgin Islands of U. S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS, NORTH AMERICA	$50,577	$50,322	$34,874	$17,406	6,869	$17,556	28,644	$25,509	88,804	$56,758	$49,034	$56,367
SOUTH AMERICA												
Argentina	$5,471	$10,584	$238	.....	1,010	$3,842	.....	.....	160,299	$90,573	$7,334	$7,875
Bolivia	4,254	.....	68	.....	.....	.....	.....	.....	.....	.....	135	143
Brazil	13,963	2,119	2,104	.....	132	396	.....	.....	1,083	2,200	.....	3,491
Chile	12,368	16,497	2,276	.....	516	1,874	.....	.....	6,217	3,709	363	443
Colombia	1,890	3,622	2,365	$143	.....	.....	1,301	$1,008	11,382	6,876	8,642	1,134
Ecuador	.....	134	174	.....	.....	.....	.....	.....	2,236	1,598	879	.....
British Guiana	2,110	350	.....	.....	.....	.....	.....	.....	174	143	.....	.....
Dutch Guiana	42	428	.....	.....	.....	.....	.....	.....	96	77	.....	.....
Paraguay	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Peru	3,399	3,256	1,798	.....	41	187	24	48	1,073	709	.....	851
Uruguay	1,477	693	.....	.....	.....	.....	.....	.....	11,592	8,842	1,189	968
Venezuela	74	2,903	4,997	200	.....	.....	.....	.....	36	32	1,986	528
TOTALS, SOUTH AMERICA	$45,048	$40,586	$14,020	$343	1,699	$6,293	1,325	$1,056	194,188	$114,759	$20,528	$15,433
ASIA												
British India	$1,164	$506	$456	.....	96	$340	.....	.....	4,435	$4,705	$184	$580
Ceylon	.....	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	572
Straits Settlements	.....	41	.....	.....	.....	.....	48	$47	3,592	2,774	.....	2,769
China	5,451	795	580	.....	396	696	7,361	6,032	12	25	.....	2,114
Chosen	974	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Java and Madura	5,111	1,605	58	.....	.....	.....	.....	.....	1,992	3,125	36	9,049
Other Dutch East Indies	567	6,235	30	.....	.....	.....	.....	.....	46	28	.....	.....
French Indo-China	.....	.....	.....	.....	.....	.....	.....	.....	138	247	.....	.....
Hejaz, Arabia, etc.	.....	.....	.....	.....	.....	.....	212	223	.....	.....	.....	.....
Hongkong	.....	.....	.....	.....	.....	.....	96	79	.....	.....	.....	.....
Japan	3,173	11,776	14,005	$4,065	36	112	380	298	.....	.....	605	1,004
Kwangtung, leased territory	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Palestine and Syria	731	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Persia	.....	.....	.....	.....	36	133	90	84	.....	.....	.....	.....
Philippine Islands	47	3,889	978	.....	.....	.....	9	8	14,996	16,692	3,971	4,232
Siam	.....	.....	.....	.....	.....	.....	.....	.....	180	93	.....	.....
Other Asia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS, ASIA	$17,120	$24,890	$16,107	$4,065	564	$1,281	8,196	$6,771	25,391	$27,689	$4,796	$20,420
OCEANIA												
Australia	$11,872	$10,288	$4,015	.....	1,890	$4,971	.....	.....	188	$143	.....	$22,160
British Oceania	.....	.....	.....	.....	.....	.....	.....	.....	460	463	.....	.....
French Oceania	.....	.....	.....	.....	.....	.....	.....	.....	288	348	.....	.....
New Zealand	115	2,474	763	.....	214	727	.....	.....	.....	.....	.....	2,001
Other Oceania	.....	.....	.....	.....	.....	.....	.....	.....	24	30	.....	105
TOTALS, OCEANIA	$11,987	$12,762	$4,778	.....	2,104	$5,698	.....	.....	960	$984	.....	$24,266

United States by Countries During September, 1925

Waterproofed Outer Garments Value	Pneumatic Casings: Automobile Number	Pneumatic Casings: Automobile Value	Pneumatic Casings: Others Value	Pneumatic Tubes: Automobile Value	Pneumatic Tubes: Others Value	Solid Tires: Automobile and Motor Truck Number	Solid Tires: Automobile and Motor Truck Value	Solid Tires: Others Value	Tire Rubber Accessories, Repair Materials Value	Hard Rubber Goods: Electrical Supplies Value	Hard Rubber Goods: Others Value	Rubber Water Bottles and Fountain Syringes Value	Other Druggists' Rubber Sundries Value	Bathing Caps Value	Rubber Toys, Balls and Balloons Value
.....	156	$3,277	.....	$481	.....	.....	.....	.....	$77	.....	.....	$34	.....	.....	.....
.....	18	164	.....	.....	.....	.....	.....	$212	284	.....	.....	.....	$726	.....	.....
.....	2,436	45,691	$195	7,073	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	116	2,231	.....	788	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	977	19,496	412	4,038	$374	40	$2,003	.....	3,027	$162	$18	357	409	$8,055	$120
$17	2,311	36,716	167	15,432	25	107	2,714	.....	1,374	.....	.....	.....	.....	.....	.....
.....	905	12,722	.....	1,487	.....	.....	.....	.....	4,609	1,767	4,524	405	2,278	.....	181
.....	3,146	62,055	845	5,049	12	.....	.....	.....	1,976	.....	.....	210	480	.....	1,608
319	1,244	38,131	.....	4,026	.....	8	227	.....	567	.....	.....	.....	.....	.....	.....
.....	1,511	23,240	.....	4,200	.....	184	9,540	.....	25	.....	.....	.....	.....	.....	.....
.....	67	2,394	.....	430	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
81	.....	.....	.....	.....	.....	.....	.....	.....	158	.....	.....	.....	.....	.....	450
.....	220	3,476	.....	624	.....	66	1,222	.....	.....	.....	.....	.....	.....	.....	70
.....	175	3,782	.....	834	37	10	198	.....	.....	.....	.....	.....	.....	.....	73
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,378	92	.....
.....	3,259	63,549	764	1,311	.....	6	180	.....	1,302	.....	.....	.....	202	.....	873
.....	2,015	42,841	.....	7,163	.....	35	2,603	.....	980	84	.....	.....	.....	.....	.....
.....	160	2,943	.....	567	297	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	645	10,367	.....	1,781	.....	.....	.....	.....	94	.....	.....	130	115	.....	.....
.....	390	4,258	.....	1,696	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	20	700	49	35	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
32	3,068	59,179	28	8,033	.....	449	15,132	.....	5,033	.....	304	601	846	.....	100
.....	8,253	156,574	182	18,243	150	246	16,777	.....	695	.....	.....	.....	1,586	29	34,233
.....	1,008	34,287	.....	3,085	.....	2	195	.....	.....	.....	116	77	1,059	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1,901	17,666	197,384	2,817	34,057	41	1,385	33,726	.....	9,127	1,005	24,523	10,302	23,947	55	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	474	.....	.....	.....	.....	.....	.....
.....	349	5,462	.....	1,102	115	4	235	.....	787	.....	.....	.....	.....	.....	.....
$2,350	50,115	$830,919	$5,459	$121,535	$1,060	2,542	$84,752	$212	$30,529	$3,018	$29,485	$12,116	$33,026	$8,231	$37,708
$2,626	4,670	$65,555	$374	$8,674	$531	49	$2,249	$288	$20,598	$16,122	$5,617	$2,128	$19,910	$104	$8,061
13	2	39	.....	11	.....	.....	.....	.....	.....	.....	43	.....	74	.....	22
.....	4	68	.....	.....	.....	2	69	.....	210	.....	.....	.....	72	.....	70
358	82	2,824	124	603	.....	.....	.....	405	146	.....	19	39	153	.....	.....
1,832	131	2,282	.....	834	.....	14	945	.....	43	.....	64	84	78	.....	17
.....	94	1,289	.....	53	.....	.....	.....	.....	.....	39	2	.....	68	15	174
130	937	13,620	113	5,136	86	30	716	219	99	.....	.....	245	636	14	692
.....	455	9,345	10	1,872	.....	58	2,542	.....	137	.....	.....	.....	.....	.....	316
2,615	8,237	91,366	947	13,499	14	247	5,909	1,400	4,601	109	705	440	3,107	.....	7,123
157	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2,090	128	1,414	.....	436	56	.....	.....	27	158	12	15	97	79	22	83
32	.....	.....	.....	.....	.....	.....	.....	107	5	.....	.....	.....	13	26	.....
.....	22	352	.....	47	.....	45	1,114	.....	75	.....	.....	117	.....	.....	16
.....	61	1,678	.....	.....	.....	.....	.....	.....	99	.....	.....	.....	.....	.....	.....
.....	17	262	.....	31	.....	.....	.....	.....	48	.....	.....	.....	.....	.....	.....
.....	291	3,505	.....	419	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58
4,252	6,381	69,280	5,788	30,286	1,167	1,353	38,576	234	5,894	140	761	1,830	5,449	83	639
1,010	2,602	28,632	100	5,890	30	96	3,199	59	276	.....	.....	.....	242	.....	98
288	227	2,484	.....	825	.....	.....	.....	.....	36	.....	.....	.....	.....	.....	.....
.....	180	4,020	.....	654	.....	6	275	.....	.....	.....	.....	.....	.....	.....	44
41	341	4,340	149	891	23	4	613	360	536	.....	.....	.....	.....	.....	.....
.....	2	38	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
$15,444	24,864	$302,393	$7,605	$70,161	$1,907	1,904	$56,207	$3,099	$52,961	$16,422	$7,226	$4,980	$29,881	$264	$17,423
$14	12,944	$173,110	.....	$25,222	.....	371	$13,654	.....	$13,507	$1,323	$1,688	$113	$4,720	$2,067	$3,619
.....	48	794	.....	45	.....	28	834	.....	.....	.....	.....	171	235	.....	.....
.....	3,613	36,876	.....	10,800	.....	207	5,827	.....	2,338	.....	235	227	746	437	1,514
254	3,281	69,340	.....	6,427	.....	108	8,329	$164	1,228	.....	.....	.....	2,366	319	66
1,073	1,528	27,255	$292	7,913	$163	84	5,743	.....	863	.....	31	555	984	.....	711
.....	66	1,196	.....	250	.....	.....	.....	.....	31	.....	840	137	103	.....	.....
185	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52	.....	289
.....	14	205	.....	48	.....	.....	.....	.....	15	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	45	.....	.....	.....	.....
706	1,180	25,100	610	4,356	100	95	4,166	.....	379	.....	437	355	576	.....	160
267	5,456	74,905	270	6,508	.....	89	3,404	.....	303	.....	.....	.....	1,372	611	281
729	2,582	44,188	64	11,156	.....	9	895	.....	153	.....	.....	484	450	.....	188
$3,223	30,712	$452,969	$1,236	$72,725	$263	991	$42,852	$164	$18,817	$1,323	$3,276	$2,042	$11,604	$3,434	$6,828
.....	6,562	$75,860	$266	$5,675	.....	437	$10,332	$19,775	$302	.....	$85	$343	$713	.....	$11,065
.....	230	4,264	.....	424	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	272
.....	4,841	45,442	.....	459	.....	261	5,207	329	381	.....	.....	90	.....	.....	.....
.....	1,565	18,683	.....	3,171	.....	.....	.....	951	152	.....	14	1,015	749	.....	1,116
$21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	4,391	60,258	99	3,305	.....	523	16,874	13,323	1,337	.....	.....	20	.....	$350	.....
.....	982	11,171	50	1,603	.....	.....	.....	.....	.....	.....	.....	.....	.....	17	41
.....	10	217	.....	45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	150	1,422	.....	27	.....	2	46	.....	.....	.....	.....	100	41	.....	107
.....	145	2,250	.....	252	$12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	3,615	44,473	794	7,477	576	534	9,571	.....	373	$50	3,286	50	1,648	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	253	.....	.....	.....	.....	.....	.....
.....	574	11,432	.....	2,123	.....	.....	.....	.....	.....	.....	.....	.....	722	400	739
.....	28	194	.....	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	6,364	60,781	.....	17,050	21	320	9,514	9,993	1,225	.....	.....	345	494	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	107	.....	.....	.....	37	.....	223
.....	.....	.....	.....	.....	.....	.....	.....	.....	546	.....	.....	.....	.....	.....	.....
$21	29,457	$336,447	$1,209	$41,651	$609	2,077	$51,544	$44,371	$4,670	$1,323	$3,385	$1,963	$4,404	.....	$13,563
$34	5,356	$76,630	.....	$7,875	.....	1,445	$30,768	$1,033	$7,519	$2,134	$895	$84	$4,999	$396	$4,532
.....	15	164	.....	11	.....	.....	.....	.....	.....	23	.....	.....	.....	.....	.....
16	.....	.....	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....
42	9,108	99,648	.....	6,907	.....	515	22,315	219	6,643	477	13	.....	899	723	1,032
.....	53	777	$27	191	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
$92	14,532	$177,219	$27	$14,984	.....	1,960	$53,083	$1,252	$14,170	$2,684	$908	$84	$5,898	$1,119	$5,564

Exports of India Rubber Manufactures from the

	Belting Value	Hose Value	Packing Value	Thread Value	Boots Pairs	Boots Value	Shoes Pairs	Shoes Value	Canvas Shoes with Rubber Soles Pairs	Canvas Shoes with Rubber Soles Value	Soles and Heels Value	Waterproofed Auto Cloth and Rubberized Fabrics Value
AFRICA												
Belgian Kongo	$2,460	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
British West Africa	.....	$106	$7	.....	.....	.....	20	$38	800	$161	.....	.....
British South Africa	18,316	23,988	3,426	.....	397	$1,261	1,864	1,480	1,037	1,253	$1,219	$165
British East Africa	2,631	25	.....	.....	.....	.....	.....	.....	120	238	.....	.....
Canary Islands	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Egypt	268	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	433
Algeria and Tunis	.....	330	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Other French Africa	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liberia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Portuguese East Africa	20,868	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	141
Other Portuguese Africa	345	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Spanish Africa	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS, AFRICA	$41,888	$24,449	$3,433	.....	397	$1,261	1,884	$1,518	1,957	$1,652	$1,219	$739
GRAND TOTALS	$215,472	$184,643	$85,230	$176,255	114,593	$240,455	206,925	$210,265	317,235	$208,495	$88,116	$159,970

Official India Rubber Statistics for the United States

Imports of Crude and Manufactured Rubber

	September, 1925 Pounds	September, 1925 Value	Nine Months Ended September, 1925 Pounds	Nine Months Ended September, 1925 Value
UNMANUFACTURED—*Free*				
Crude rubber	59,061,732	$36,686,013	637,264,962	$258,349,845
Balata	173,393	93,946	676,841	342,847
Jelutong or Pontianak	629,476	90,068	12,396,281	1,314,199
Gutta percha	306,082	80,859	2,422,861	402,046
Guayule	567,061	130,843	5,569,498	1,095,291
Rubber scrap	1,839,784	68,152	16,162,983	641,910
Totals	62,577,528	$37,149,881	674,493,426	$262,146,138
Chicle *dutiable*	458,461	$226,691	8,799,889	$4,380,975
MANUFACTURED—*dutiable*				
Rubber belting	54,439	$40,885	569,236	$428,135
Other rubber manufactures of substitutes for rubber	.....	106,231	.....	968,237
Totals	54,439	$147,116	569,236	$1,396,372

Exports of Foreign Merchandise

UNMANUFACTURED				
Crude rubber	2,585,543	$1,820,360	23,699,427	$12,334,273
Balata	41,601	22,018	455,652	294,124
Jelutong or Potianak	.....	.....	.....	.....
Gutta percha and rubber substitutes and scraps	.....	.....	92,192	5,024
Totals	2,627,144	$1,842,378	24,247,271	$12,633,421
Chicle	133	$53	133,660	$63,021
MANUFACTURED				
Gutta percha and India rubber	82,356	$58,175	202,843	$152,812
Totals	82,356	$58,175	202,843	$152,812

Exports of Domestic Merchandise

MANUFACTURED				
India rubber				
Reclaimed	711,952	$74,249	7,328,106	$729,063
Scrap and old	2,249,737	148,799	25,850,622	1,184,016
Footwear				
Boots *pairs*	114,593	240,455	648,474	1,474,380
Shoes *pairs*	206,925	210,265	848,774	781,229
Canvas shoes with rubber soles *pairs*	317,235	208,495	3,501,671	2,461,914
Rubber water bottles and fountain syringes *number*	21,660	21,485	209,007	152,164
Other druggists' rubber sundries	79,937	86,945	703,715	763,237
Bathing caps *dozen*	6,267	14,847	174,073	299,628
Hard rubber goods				
Electrical hard rubber goods	89,889	23,447	765,642	217,964
Other hard rubber goods	38,453	44,280	471,539	455,578
Tires				
Pneumatic casings				
For automobiles *number*	155,594	2,175,981	1,260,608	15,399,099
Others *number*	4,290	15,592	41,535	155,743
Pneumatic tubes				
For automobiles *number*	149,234	330,699	1,134,590	2,078,313
Others *number*	3,227	3,864	33,301	32,887
Solid tires				
For automobiles and motor trucks *number*	9,676	295,409	82,487	2,180,882
Others *number*	209,495	50,552	1,095,071	241,483
Tire accessories	239,010	50,552	1,787,464	764,306
Belting	351,969	215,472	3,226,050	1,853,530
Hose	440,880	184,643	4,074,760	1,569,036
Packing	184,545	85,230	1,366,246	621,960
Soles and heels	298,484	88,116	2,399,349	729,727
Thread	148,510	176,255	1,048,014	1,245,226
Other rubber manufactures	393,147	178,365	4,036,625	1,881,210
Totals	.....	$5,275,451	.....	$39,453,457
Rubber toys, balls and balloons	67,208	$85,220	814,304	981,012

Imports of Crude Rubber Into the United States by Customs Districts

	September, 1924 Pounds	September, 1924 Value	*September, 1925 Pounds	*September, 1925 Value
Massachusetts	2,589,543	$533,945	715,490	$387,380
New York	51,872,083	10,785,257	55,851,866	34,769,315
Rochester	.....	.....	5,102	4,694
Philadelphia	1,423,782	286,815	.....	.....
Maryland	708,048	122,621	.....	.....
Los Angeles	1,321,118	234,943	1,625,875	1,009,496
San Francisco	1,705,204	359,407	166,367	82,948
Oregon	140,140	36,905	50,400	19,981
Washington	.....	.....	589,512	383,847
Colorado	168,000	34,085	57,120	28,352
Totals	59,927,918	$12,393,978	59,061,732	$36,686,013

* Including Latex Dry Rubber Content.

JAPAN'S EXPORTS OF RUBBER TIRES ADVANCED FROM A VALUE OF 1,100,000 yen in September, 1925, to 1,900,000 yen for the month following. The yen at par has a value of $0.4985; average quotations for September, $0.4075; and October, $0.4096.

United States Crude and Waste Rubber Imports for 1925 (By Months)

	Plantations	Parás	Africans	Centrals	Guayule	Manicoba and Matto Grosso	Total 1925	Total 1924	Balata	Miscellaneous	Waste
January tons	28,480	989	325	54	112	...	29,960	21,611	22	1,462	206
February	21,740	1,203	120	224	163	6	23,456	31,763	48	908	241
March	31,067	1,906	287	305	346	3	33,914	17,752	25	1,022	186
April	25,403	1,167	332	78	244	7	27,231	42,436	38	987	243
May	34,187	1,834	287	203	364	14	36,889	23,914	30	816	182
June	28,522	990	225	294	299	7	30,337	18,840	33	1,160	143
July	32,147	977	335	117	321	21	33,918	18,469	46	976	371
August	29,921	598	160	456	364	85	31,584	20,076	36	641	388
September	24,777	1,486	122	500	170	16	27,071	29,000	54	506	398
October	31,450	1,647	106	1,263	414	28	34,908	37,157	153	1,081	199
Totals, 10 months, 1925 tons	287,694	12,797	2,299	3,494	2,797	187	309,268	.....	485	9,559	2,557
Totals, 10 months, 1924	246,033	10,319	2,904	646	1,116	...	.....	261,018	432	6,415	732

Compiled from statistics supplied by the Rubber Association of America, Inc.

United States by Countries During September, 1925 *(Continued)*

Waterproofed Outer Garments Value	Pneumatic Casings: Automobile Number	Pneumatic Casings: Automobile Value	Pneumatic Casings: Others Value	Pneumatic Tubes: Automobile Value	Pneumatic Tubes: Others Value	Solid Tires: Automobile and Motor Truck Number	Solid Tires: Automobile and Motor Truck Value	Solid Tires: Others Value	Tire Rubber Accessories, Repair Materials Value	Hard Rubber Goods: Electrical Supplies Value	Hard Rubber Goods: Others Value	Rubber Water Bottles and Fountain Syringes Value	Other Druggists' Rubber Sundries Value	Bathing Caps Value	Rubber Toys, Balls and Balloons Value
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
$45	279	$8,451	.....	$750	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3,438	3,170	32,813	$43	4,260	$25	61	$1,269	.....	$4,192	.....	.....	$300	$1,237	$1,032	$4,098
.....	493	7,131	.....	1,152	.....	.....	.....	.....	37	.....	.....	.....	.....	.....	.....
.....	530	7,533	.....	575	.....	40	2,583	.....	364	.....	.....	.....	260	.....	36
.....	1,060	14,121	13	1,695	.....	101	3,119	$1,454	767	.....	.....	.....	635	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	18	226	.....	62	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	8	140	.....	46	.....	.....	.....	.....	90	.....	.....	.....	.....	.....	.....
.....	20	315	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	282	4,613	.....	965	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	74	691	.....	138	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
$3,483	5,934	$76,034	$56	$9,643	$25	202	$6,971	$1,454	$5,450	.....	.....	$300	$2,132	$1,032	$4,134
$24.618	155,614	$2.175,981	$15,592	$330,699	$3,864	9,676	$295,409	$50,552	$106,597	$23,447	$44,280	$21,485	$86,945	$14,847	$85,220

United Kingdom Rubber Statistics

Imports

UNMANUFACTURED	September, 1925 Pounds	September, 1925 Value	Nine Months Ended September, 1925 Pounds	Nine Months Ended September, 1925 Value
Crude rubber				
From—				
Straits Settlements	9,678,400	£1,580,217	51,546,000	£6,245,125
Federated Malay States	3,461,500	570,228	19,951,700	2,386,400
British India	721,900	120,325	7,706,700	792,395
Ceylon and Dependencies	4,005,000	569,740	19,436,200	2,407,895
Other Dutch possessions in Indian Seas	615,300	95,244	7,015,500	802,287
Dutch East Indies (except other Dutch possessions in Indian Seas)	2,276,600	374,439	13,787,200	1,662,184
Other countries in East Indies and Pacific, not elsewhere specified	193,900	35,853	1,460,300	183,289
Brazil	732,400	109,671	5,986,400	518,269
Peru	.....	.....	15,400	1,650
South and Central America (except Brazil and Peru)	10,400	1,493	92,300	11,631
West Africa				
French West Africa	2,100	270	1,119,600	62,619
Gold Coast	143,200	17,765	211,300	23,685
Other parts of West Africa	169,100	27,528	885,100	87,028
East Africa, including Madagascar	58,800	8,992	551,300	63,625
Other countries	195,100	24,930	1,041,200	136,337
Totals	22,263,700	£3,536,695	130,806,200	£15,384,419
Waste and reclaimed rubber	1,141,700	12,996	5,367,200	67,217
Gutta percha and balata	884,000	113,610	7,983,600	1,061,412
Rubber substitutes	.....	.....	144,200	5,935
Totals	24,289,400	£3,663,301	144,301,200	£16,518,983
MANUFACTURED				
Boots and shoes....*doz. pairs*	22,702	£84,502	260,255	£634,443
Tires and tubes				
Pneumatic				
Outer covers	.....	252,207	.....	2,288,987
Inner tubes	.....	53,056	.....	334,354
Solid tires	.....	40,238	.....	275,361
Other rubber manufactures	.....	136,083	.....	1,246,858
Totals	.....	£566,086	.....	£4,780,003

Exports

UNMANUFACTURED				
Waste and reclaimed	3,139,100	£37,899	14,534,800	£170,590
Rubber substitutes	129,300	2,818	979,700	22,372
Totals	3,268,400	£40,717	15,514,500	£192,962
MANUFACTURED				
Boots and shoes....*doz. pairs*	22,959	£37,272	224,402	£352,064
Tires and tubes				
Pneumatic				
Outer covers	.....	278,033	.....	2,209,651
Inner tubes	.....	57,754	.....	465,068
Solid tires	.....	43,548	.....	305,585
Other rubber manufactures	.....	232,142	.....	2,309,373
Totals	.....	£648,749	.....	£5,641,741

Exports—Colonial and Foreign

UNMANUFACTURED	September, 1925 Pounds	September, 1925 Value	Nine Months Ended September, 1925 Pounds	Nine Months Ended September, 1925 Value
Crude rubber				
To—				
Russia	$23,200	£90,149	11,964,800	£1,045,791
Sweden, Norway and Denmark	121,300	19,437	1,566,200	152,619
Germany	1,246,900	183,472	16,734,800	1,633,031
Belgium	286,100	46,602	3,983,100	403,496
France	4,354,200	657,742	28,338,600	3,139,465
Spain	28,000	4,582	553,900	54,005
Italy	950,400	159,497	8,085,300	829,180
Austria	.....	.....	116,300	9,982
Hungary	12,500	2,159	21,700	2,987
Other European countries	67,100	11,978	1,689,600	148,975
United States	2,535,400	396,731	65,537,100	6,285,118
Canada	600	121	4,333,400	402,512
Other countries	111,900	19,628	794,800	80,327
Totals	10,237,600	£1,592,098	143,719,600	£14,187,488
Waste and reclaimed rubber	21,200	447	245,800	6,187
Gutta percha and balata	59,400	9,238	613,400	54,359
Rubber substitutes	1,200	55	56,400	2,714
Totals	10,319,400	£1,601,838	144,635,200	£14,250,748
MANUFACTURED				
Boots and shoes.....*doz. pairs*	562	£1,205	4,045	£10,509
Tires and tubes				
Pneumatic				
Outer covers	.....	82,358	.....	343,236
Inner tubes	.....	15,977	.....	49,979
Solid tires	.....	5,710	.....	16,770
Other rubber manufactures	.....	6,861	.....	115,013
Totals	.....	£112,111	.....	£535,507

Landings, Deliveries and Stocks in London and Liverpool as Returned by the Warehouses and Wharves During the Month of September, 1925

	Landed for September Tons	Delivered for September Tons	Stocks, September 30: 1925 Tons	1924 Tons	1923 Tons
LONDON:					
Plantation	7,568	6,714	5,306	43,838	54,159
Other grades	16	5	19	109	75
LIVERPOOL:					
Plantation	†349	†144	†436	†3,569	†5,893
Pará and Peruvian	318	215	298	280	69
Other grades	....	.....	19	198	212
Total tons, London and Liverpool	8,251	7,078	6,078	47,994	60,408

†Official returns from the six recognized public warehouses.

JAPAN'S EXPORTS OF AUTOMOBILE TIRES

During the three months of July, August, and September of the present year Japan has exported automobile tires of the following values: July, 900,000 yen; August, 1,100,000 yen; and September, 1,100,000 yen. The average value of the yen in July was $0.4108; in August, $0.4098; and in September, $0.4065.

Crude Rubber Arrivals at New York as Reported by Importers

Parás and Caucho

	Fine Cases	Medium Cases	Coarse Cases	Caucho Cases	Cametá Cases
OCTOBER 21. By "Chalic," Far East.					
Paul Bertuch & Co.	*145	...	...	...	...
OCTOBER 27. By "Stephen," Brazil.					
H. A. Astlett & Co.	587	...	125	...	...
Paul Bertuch & Co.	201	...	90	163	...
Paul Bertuch & Co.	*14	...	...	...	...
General Rubber Co.	865	6	223	131	119
L. Littlejohn & Co., Inc.	408	...	27	...	...
Meyer & Brown, Inc.	†609	...	...	...	...
Meyer & Brown, Inc.	351	11	...	246	...
Poel & Kelly, Inc.	430	...	137	48	...
Ultramares Corp.	176	28	117	257	...
OCTOBER 30. By "Scythia," London.					
H. Muehlstein & Co., Inc.	...	...	...	100	...
NOVEMBER 3. By "Cameronia," London.					
Meyer & Brown, Inc.	...	...	...	66	...
NOVEMBER 10. By "Western World," Far East.					
Paul Bertuch & Co.	*646	...	*105	...	...
NOVEMBER 8. By "Bernini," Brazil.					
H. A. Astlett & Co.	245	11	172	7	...
Paul Bertuch & Co.	161	...	91	...	...
General Rubber Co.	1,025	35	155	90	...
L. Littlejohn & Co., Inc.	682	...	6	2	...
Meyer & Brown, Inc.	169	3	27	...	...
Poel & Kelly, Inc.	1,059	...	286	262	116
Ultramares Corp.	72	4	...	106	...
NOVEMBER 10. By "Samaria," London.					
Meyer & Brown, Inc.	...	...	...	39	...
NOVEMBER 16. By "Franconia," London.					
Paul Bertuch & Co.	63	...	...	...	...
Meyer & Brown, Inc.	...	...	...	42	...

*Packages. †Pelles.

Plantations

	Cases
OCTOBER 16. By "Rotterdam," Rotterdam.	
General Rubber Co.	698
Haldane, Bierrie & Co., Inc.	29
L. Littlejohn & Co., Inc.	414
OCTOBER 17. By "Yoseric," Far East.	
General Rubber Co.	1,958
L. Littlejohn & Co., Inc.	971
Meyer & Brown, Inc.	72
Poel & Kelly, Inc.	14
OCTOBER 17. By "Vasconia," London.	
Poel & Kelly, Inc.	1,268
OCTOBER 18. By "City of Lahore," Far East.	
General Rubber Co.	92
L. Littlejohn & Co., Inc.	742
OCTOBER 18. By "Memnon," Far East.	
General Rubber Co.	2,083
Hood Rubber Co.	*†132
L. Littlejohn & Co., Inc.	1,006
Meyer & Brown, Inc.	1,186
Poel & Kelly, Inc.	432
Chas. T. Wilson Co., Inc.	101
OCTOBER 19. By "American Farmer," London.	
Meyer & Brown, Inc.	128
OCTOBER 19. By "Baltic," London.	
General Rubber Co.	53
OCTOBER 19. By "Deutchland," Hamburg.	
General Rubber Co.	67
OCTOBER 19. By "Franconia," London.	
Meyer & Brown, Inc.	265
OCTOBER 19. By "Lancastria," London.	
H. A. Astlett & Co.	80
Baird Rubber & Trading Co., Inc.	864
OCTOBER 19. By "Minnetonka," London.	
General Rubber Co.	2,951
L. Littlejohn & Co., Inc.	3,178
Meyer & Brown, Inc.	20
Poel & Kelly, Inc.	865
Chas. T. Wilson Co., Inc.	219
OCTOBER 21. By "Arabic," London.	
Meyer & Brown, Inc.	250
OCTOBER 21. By "City of Bedford," Far East.	
H. A. Astlett & Co.	1,711
Baird Rubber & Trading Co., Inc.	1,944
General Rubber Co.	4 629
Hood Rubber Co.	*†152
L. Littlejohn & Co., Inc.	5,522
Meyer & Brown, Inc.	958
Meyer & Brown, Inc.	*96
H. Muehlstein & Co., Inc.	400
Poel & Kelly, Inc.	2,645
Chas. T. Wilson Co., Inc.	11
OCTOBER 22. By "Pres. Van Buren," Far East.	
H. A. Astlett & Co.	50
Baird Rubber & Trading Co., Inc.	67
Paul Bertuch & Co.	300
General Rubber Co.	1,372
*Hood Rubber Co.	3,255
L. Littlejohn & Co., Inc.	2,141
Meyer & Brown, Inc.	1,414
Meyer & Brown, Inc.	*250
H. Muehlstein & Co., Inc.	856
Poel & Kelly, Inc.	100
Chas. T. Wilson Co., Inc.	192
OCTOBER 24. By "Mahanada," Far East.	
General Rubber Co.	2,632
L. Littlejohn & Co., Inc.	197
Meyer & Brown	517
OCTOBER 24. By "Veendam," Rotterdam.	
General Rubber Co.	195
OCTOBER 26. By "Bolton Castle," Far East.	
H. A. Astlett & Co.	250
Baird Rubber & Trading Co., Inc.	782
General Rubber Co.	7,039
Hood Rubber Co.	*50
L. Littlejohn & Co., Inc.	4,466
Meyer & Brown, Inc.	1,823
Meyer & Brown, Inc.	*300
H. Muehlstein & Co., Inc.	680
Poel & Kelly, Inc.	1,087
Chas. T. Wilson Co., Inc.	409
OCTOBER 27. By "Newby Hall," Far East.	
General Rubber Co.	354
L. Littlejohn & Co.	504
Meyer & Brown, Inc.	21
OCTOBER 27. By "Pres. Pierce," Far East.	
Meyer & Brown, Inc.	$250
OCTOBER 29. By "Batoe," Far East.	
H. A. Astlett & Co.	632
Baird Rubber & Trading Co., Inc.	66
General Rubber Co.	3,230
L. Littlejohn & Co., Inc.	1,909
Meyer & Brown	969
H. Muehlstein & Co., Inc.	104
Poel & Kelly, Inc.	912
Poel & Kelly, Inc.	†53
OCTOBER 30. By "Slavic Prince," Far East.	
H. A. Astlett & Co.	592
Baird Rubber & Trading Co., Inc.	2,061
General Rubber Co.	3,088
Haldane, Bierrie & Co., Inc.	87
*Hood Rubber Co.	288
L. Littlejohn & Co., Inc.	6,939
Meyer & Brown, Inc.	3,406
H. Muehlstein & Co., Inc.	350
H. Muehlstein & Co., Inc.	*280
Poel & Kelly, Inc.	1,546
Chas. T. Wilson Co., Inc.	427
OCTOBER 30. By "Celtic Prince," Far East.	
H. A. Astlett & Co.	1,005
H. A. Astlett & Co.	*103
Baird Rubber & Trading Co., Inc.	41
General Rubber Co.	3,814
Haldane, Bierrie & Co., Inc.	364
L. Littlejohn & Co., Inc.	3,631
Meyer & Brown, Inc.	2,486
Meyer & Brown, Inc.	*200
H. Muehlstein & Co., Inc.	1,504
Poel & Kelly, Inc.	1,879
Chas. T. Wilson Co., Inc.	1,405
OCTOBER 30. By "The Lambs," Far East.	
Baird Rubber & Trading Co., Inc.	100
General Rubber Co.	789
L. Littlejohn & Co., Inc.	848
Meyer & Brown, Inc.	290
H. Muehlstein & Co., Inc.	500
Poel & Kelly, Inc.	50
Chas. T. Wilson Co., Inc.	10
OCTOBER 31. By "American Trader," London.	
Baird Rubber & Trading Co., Inc.	152
General Rubber Co.	365
L. Littlejohn & Co., Inc.	792
Meyer & Brown, Inc.	14
H. Muehlstein & Co., Inc.	165
OCTOBER 31. By "Urbino," Far East.	
Baird Rubber & Trading Co., Inc.	32
L. Littlejohn & Co., Inc.	1,429
Meyer & Brown, Inc.	72
Chas. T. Wilson Co., Inc.	45
OCTOBER 31. By "De Grasse," France.	
General Rubber Co.	209
H. Muehlstein & Co., Inc.	50
OCTOBER 31. By "Reliance," Germany.	
H. Muehlstein & Co., Inc.	63
Poel & Kelly, Inc.	198
NOVEMBER 2. By "Valacia," London.	
Baird Rubber & Trading Co., Inc.	20
General Rubber Co.	96
L. Littlejohn & Co., Inc.	202
H. Muehlstein & Co., Inc.	146
NOVEMBER 3. By "Minnewaska," London.	
General Rubber Co.	2,605
L. Littlejohn & Co., Inc.	353
NOVEMBER 3. By "Volendam," Amsterdam.	
General Rubber Co.	131
Haldane, Bierrie & Co., Inc.	152
H. Muehlstein & Co., Inc.	138
NOVEMBER 4. By "Cleveland," Germany.	
L. Littlejohn & Co., Inc.	383
H. Muehlstein & Co., Inc.	38
NOVEMBER 4. By "Silvercedar," Far East.	
H. A. Astlett & Co.	136
H. A. Astlett & Co.	*258
Baird Rubber & Trading Co., Inc.	542
General Rubber Co.	6,004
L. Littlejohn & Co., Inc.	2,409
Meyer & Brown, Inc.	993
Meyer & Brown, Inc.	*200
H. Muehlstein & Co., Inc.	50
Poel & Kelly, Inc.	1,080
Chas. T. Wilson Co., Inc.	440
NOVEMBER 7. By "Karimoen," Far East.	
H. A. Astlett & Co.	153
Baird Rubber & Trading Co., Inc.	317
General Rubber Co.	1,591
Haldane, Bierrie & Co., Inc.	51
Hood Rubber Co.	*†25
L. Littlejohn & Co., Inc.	1,711
Meyer & Brown, Inc.	1,198
H. Muehlstein & Co., Inc.	243
Poel & Kelly, Inc.	278
Chas. T. Wilson Co., Inc.	29
NOVEMBER 7. By "Pres. Hayes," Far East.	
H. A. Astlett & Co.	514
H. A. Astlett & Co.	*68
Baird Rubber & Trading Co., Inc.	451
General Rubber Co.	1,515
Hood Rubber Co.	*3,875
L. Littlejohn & Co., Inc.	1,364
Meyer & Brown, Inc.	1,513
Meyer & Brown, Inc.	*1,000
H. Muehlstein & Co., Inc.	1,100
Poel & Kelly, Inc.	50
Chas. T. Wilson Co., Inc.	1,233
NOVEMBER 9. By "Nieuw Amsterdam," Holland.	
General Rubber Co.	199
L. Littlejohn & Co., Inc.	845
NOVEMBER 9. By "Comeric," Far East.	
General Rubber Co.	1,890
Hood Rubber Co.	*100
L. Littlejohn & Co., Inc.	2,551
Meyer & Brown Inc.	280
Chas. T. Wilson Co., Inc.	248
NOVEMBER 9. By "City of Rangoon," Far East.	
General Rubber Co.	1,183
Meyer & Brown, Inc.	168
NOVEMBER 9. By "Merton Hall," Far East.	
H. A. Astlett & Co.	160
H. A. Astlett & Co.	*101
Baird Rubber & Trading Co.	504
General Rubber Co.	2,612
Haldane, Bierrie & Co., Inc.	150
Hood Rubber Co.	*298
L. Littlejohn & Co., Inc.	5,576
Meyer & Brown, Inc.	2,013
Meyer & Brown, Inc.	*250
H. Muehlstein & Co., Inc.	373
Poel & Kelly, Inc.	1,002
Chas. T. Wilson Co., Inc.	128
NOVEMBER 9. By "Minnekahda," England.	
General Rubber Co.	2,509
L. Littlejohn & Co., Inc.	424
NOVEMBER 9. By "Pres. Taft," Far East.	
Meyer & Brown, Inc.	$250
Poel & Kelly, Inc.	100
NOVEMBER 11. By "American Merchant," England.	
L. Littlejohn & Co., Inc.	225
Poel & Kelly, Inc.	50
NOVEMBER 11. By "Steel Seafarer," Far East.	
H. A. Astlett & Co.	66
General Rubber Co.	4,711
L. Littlejohn & Co., Inc.	586
H. Muehlstein & Co., Inc.	300
Poel & Kelly, Inc.	44
Chas. T. Wilson Co., Inc.	195
NOVEMBER 11. By "Westphalia," Germany.	
L. Littlejohn & Co., Inc.	514
H. Muehlstein & Co., Inc.	384

	Cases
NOVEMBER 13. By "Catherine Park," Far East.	
H. A. Astlett & Co.	295
Baird Rubber & Trading Co., Inc.	200
General Rubber Co.	4,890
L. Littlejohn & Co., Inc.	3,643
Meyer & Brown, Inc.	1,707
Foel & Kelly, Inc.	†47
Chas. T. Wilson Co., Inc.	99
NOVEMBER 13. By "La Savoie," Havre.	
General Rubber Co.	32
NOVEMBER 14. By "Elmbank," Far East.	
H. A. Astlett & Co., Inc.	296
*H. A. Astlett & Co., Inc.	252
Baird Rubber & Trading Co., Inc.	3,031
General Rubber Co.	3,257
*Hood Rubber Co.	500
J. Littlejohn & Co., Inc.	2,711
Meyer & Brown, Inc.	1,620
Meyer & Brown, Inc.	*100
Chas. T. Wilson Co., Inc.	159
NOVEMBER 14. By "Zeeland," Antwerp.	
H. A. Astlett & Co.	34
NOVEMBER 16. By "Albert Ballin," Hamburg.	
Baird Rubber & Trading Co., Inc.	380
L. Littlejohn & Co., Inc.	434
NOVEMBER 16. By "Breedyk," Holland.	
General Rubber Co.	110
Haldane, Bierrie & Co., Inc.	67
L. Littlejohn & Co., Inc.	469
NOVEMBER 16. By "Clan MacBride," Far East.	
General Rubber Co.	377
L. Littlejohn & Co., Inc.	1,185
Meyer & Brown, Inc.	463
Chas. T. Wilson Co., Inc.	70
NOVEMBER 16. By "Minnetonka," London.	
General Rubber Co.	2,918
L. Littlejohn & Co., Inc.	4,676
Chas. T. Wilson Co., Inc.	219
NOVEMBER 18. By "Laomedan," Far East.	
Baird Rubber Co.	50
Hood Rubber Co.	*816
Meyer & Brown, Inc.	*400

*Arrived at Boston.
†Penang.
‡Arrived at Los Angeles.

Africans

	Cases
OCTOBER 22. By "Londonier," France.	
L. Littlejohn & Co., Inc.	205
OCTOBER 29. By "Scythia," England.	
L. Littlejohn & Co., Inc.	29
NOVEMBER 3. By "Cameronia," England.	
L. Littlejohn & Co., Inc.	4
NOVEMBER 9. By "Roussillon," Bordeaux.	
Baird Rubber & Trading Co., Inc.	95
NOVEMBER 10. By "Samaria," England.	
L. Littlejohn & Co., Inc.	157
NOVEMBER 13. By "Collamer," France.	
L. Littlejohn & Co., Inc.	9
Meyer & Brown, Inc.	754
NOVEMBER 16. By "Franconia," England.	
L. Littlejohn & Co., Inc.	112
NOVEMBER 16. By "Zeeland," Antwerp.	
Baird Rubber & Trading Co., Inc.	82

Balata

	Cases
OCTOBER 19. By "Paria," Far East.	
Middleton & Co., Ltd.	bales 29
OCTOBER 27. By "Stephen" Manaos.	
Paul Bertuch & Co.	10
General Rubber Co.	63
OCTOBER 30. By "Matura," Far East.	
Middleton & Co., Ltd.	bales 28
NOVEMBER 6. By "Haiti," Far East.	
Middleton & Co., Ltd.	bales 15
NOVEMBER 9. By "Bernini," Manaos.	
Paul Bertuch & Co.	6
General Rubber Co.	91

Centrals

	Bales
OCTOBER 26. By "Calamans," Simon.	
Ultramares Corp.	8
OCTOBER 26. By "Calamans," Guayaquil.	
Ultramares Corp.	40
OCTOBER 30. By "Lake Flattery" Guayaquil	
Ultramares Corp.	46
OCTOBER 30. By "Cristobal," Guayaquil.	
Ultramares Corp.	60
NOVEMBER 19. By "Panama," Guayaquil.	
Ultramares Corp.	60

	Bales
NOVEMBER 13. By "El Admivante," Bluefields.	
Ultramares Corp.	13
NOVEMBER 14. By "Colombian" Corinto.	
Ultramares Corp.	240

Guayule

	Cases
OCTOBER 17. By "Monterey," Mexico.	
Continental Rubber Co. of N. Y.	1,620
OCTOBER 17. By "Stephen," Brazil.	
General Rubber Co.	57
OCTOBER 27. By "Guantanamo," Mexico.	
Continental Rubber Co. of New York	2,180
NOVEMBER 2. By "Mexico," Mexico.	
Continental Rubber Co. of New York	2,180
NOVEMBER 8. By "Bernini," Brazil.	
General Rubber Co.	9
NOVEMBER 10. By "Railroad," Mexico.	
Continental Rubber Co. of New York	‡336
NOVEMBER 16. By "Monterey," Mexico.	
Continental Rubber Co. of New York	3,240

‡ Arrived at Texas.

Manicobas

	Bales
OCTOBER 23. "Corsican Prince," Far East.	
Adolph Hirsch & Co.	85
NOVEMBER 12. By "The Angeles." Far East.	
Adolph Hirsch & Co.	35
NOVEMBER 14. By "Brazilian Prince."	
Adolph Hirsch & Co.	137

Rubber Latex

	Gallons
OCTOBER 26. By "Bolton Castle," Far East.	
General Rubber Co.	242,739
OCTOBER 28. By "Batoe," Far East.	
General Rubber Co.	103,025
NOVEMBER 4. By "Silvercedar," Far East.	
General Rubber Co.	58,125
NOVEMBER 7. By "Karimoen," Far East.	
General Rubber Co.	251,277
NOVEMBER 11. By "Steel Seafarer," Far East.	
General Rubber Co.	68,683
NOVEMBER 13. By "Catherine Park," Far East	
General Rubber Co.	169,139

Rubber Statistics for the Dominion of Canada

Imports of Crude and Manufactured Rubber

	August, 1925		Five Months Ended August, 1925	
UNMANUFACTURED	Pounds	Value	Pounds	Value
Rubber, gutta percha, etc.,				
From United Kingdom	280,778	$123,602	1,411,241	$616,074
United States	2,871,413	1,936,114	13,149,594	7,615,715
Straits Settlements	369,600	208,768	2,549,087	1,148,464
Dutch East Indies	22,252	12,082	318,625	131,650
Other countries	.....	.....	56,000	20,097
Totals	3,544,043	$2,280,566	17,484,547	$9,532,000
Rubber, recovered	827,373	$79,523	2,947,651	$317,772
Rubber, powdered and rubber or gutta percha scrap	320,253	18,683	2,088,979	112,990
Balata	.....	.....	1,094	848
Rubber substitutes	50,558	4,307	28,342	33,901
Totals	1,198,184	$102,513	5,066,066	$465,511
PARTLY MANUFACTURED				
Hard rubber sheets and rods	11,705	$9,446	125,393	$71,777
Hard rubber tubes	.....	196	.....	456
Rubber thread not covered	20,903	21,640	76,089	80,204
Totals	32,608	$31,282	201,482	$152,437
MANUFACTURED				
Belting	.....	$41,099	.....	$113,627
Hose	.....	11,377	.....	86,702
Packing	.....	3,566	.....	18,796
Boots and shoes, *pairs*	1,308	3,668	10,747	22,808
Clothing, including waterproofed	.....	14,291	.....	79,869
Gloves	.....	1,360	.....	6,056
Hot water bottles	.....	1,760	.....	2,613
Tires, solid, *number*	52	2,682	2,143	14,788
Tires, pneumatic, *number*	2,071	23,985	14,042	189,618
Inner tubes, *number*	1,395	2,422	8,868	18,335
Elastic, round or flat	.....	19,016	.....	97,163
Mats and matting	.....	3,399	.....	9,678
Cement	.....	4,191	.....	19,951
Golf balls, *dozen*	2,567	10,452	21,792	90,763
Heels, rubber, *pairs*	30,172	1,769	50,148	3,317
Other rubber manufactures	.....	118,874	.....	635,331
Totals	.....	$263,911	.....	$1,409,415
Totals, rubber imports	.....	$2,678,272	.....	$11,559,363

Exports of Domestic and Foreign Rubber Goods

	August, 1925		Five Months Ended August, 1925	
UNMANUFACTURED	Produce of Canada Value	Re-exports of Foreign Goods Value	Produce of Canada Value	Re-exports of Foreign Goods Value
Crude and waste rubber	$53,605	.....	$147,979	.....
Total	$53,605	.....	$147,979	.....
MANUFACTURED				
Belting	$49,374	.....	$189,377	.....
Canvas shoes with rubber soles	246,093	.....	973,361	.....
Boots and shoes	261,481	.....	714,226	.....
Clothing, including waterproofed	2,613	.....	19,669	.....
Hose	25,497	.....	86,018	.....
Tires, casings	833,030	.....	3,631,150	.....
Inner tubes	111,660	.....	620,348	.....
Solid	16,523	.....	82,770	.....
Other rubber manufactures	26,530	$1,435	153,713	$41,563
Totals	$1,572,801	$1,435	$6,470,632	$41,563
Totals, rubber exports	$1,626,406	$1,435	$6,618,611	$41,563

RUBBER EXPORTS FROM BELGIAN CONGO—1924

	Quantity Pounds	Value Belgian Francs
Root or grass rubber	629,919	1,145,308
Vine rubber	325,168	1,323,312
Plantation rubber	294,705	1,071,656
Total	1,249,792	3,540,276

DUNLOP-NORTH BRITISH SHOE CO., LTD.

A commodious factory in which thoroughly modern machinery is to be installed will be erected in Melbourne, Australia, for the Dunlop-North British Shoe Co., Ltd. It is anticipated that the new plant will be in full working order early in 1926, and about 500 men will be employed at the opening of the first unit. The present amalgamation of the interests of the Dunlop and North British organizations is to be confined to footwear.

INDIA RUBBER WORLD
FOUNDED 1889
CAOUTCHOUC
GUTTA-PERCHA
Reg. U.S. Pat. Off.
Reg. United Kingdom.

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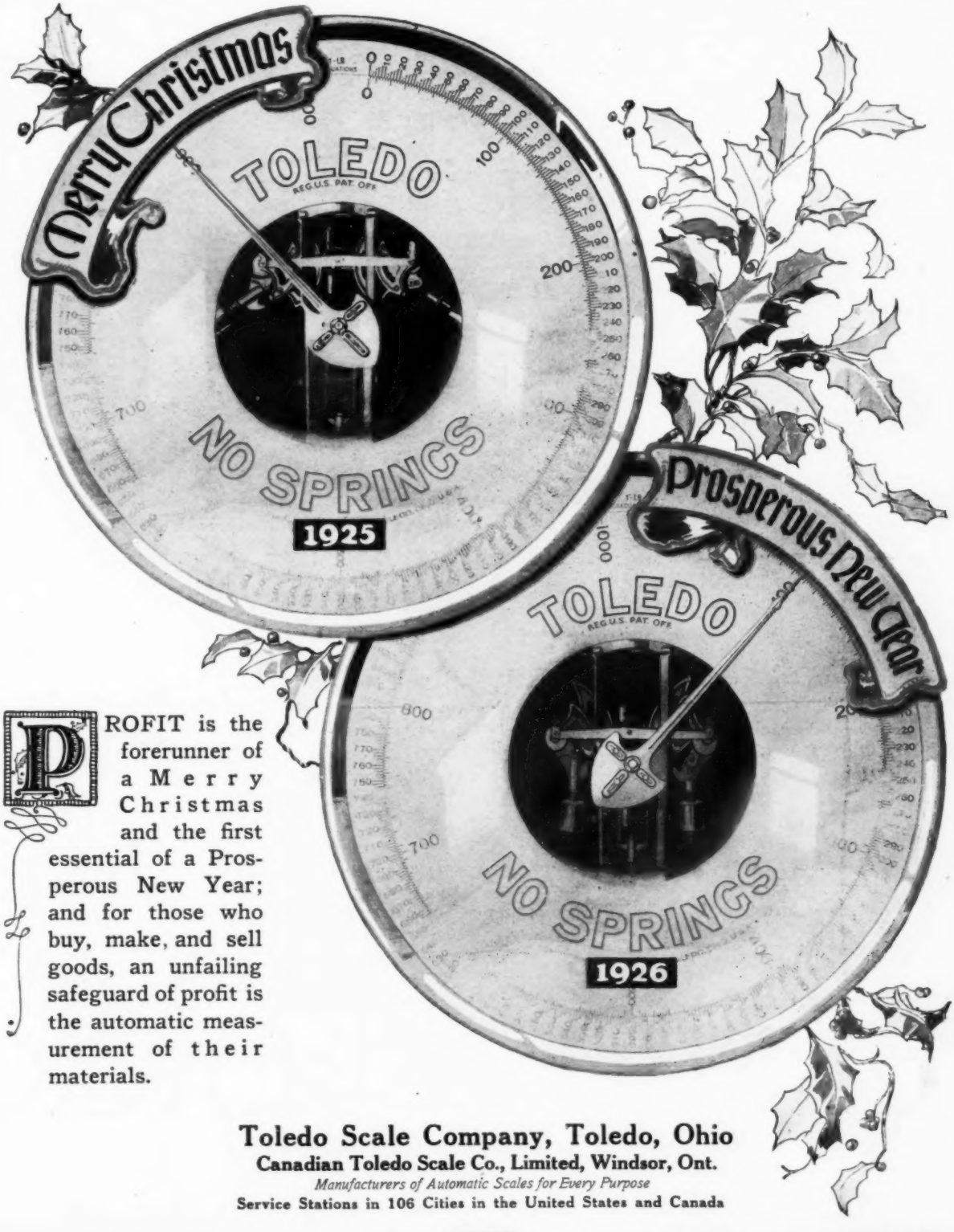

PROFIT is the forerunner of a Merry Christmas and the first essential of a Prosperous New Year; and for those who buy, make, and sell goods, an unfailing safeguard of profit is the automatic measurement of their materials.

Toledo Scale Company, Toledo, Ohio
Canadian Toledo Scale Co., Limited, Windsor, Ont.
Manufacturers of Automatic Scales for Every Purpose
Service Stations in 106 Cities in the United States and Canada

TOLEDO SCALES

NO SPRINGS HONEST WEIGHT

Our Publicity Page

Industrial Advertising

By industrial advertising is meant printed sales appeals directing the attention of producers and manufacturers in general to the merits and advantages claimed for machines, equipment, processes, materials and supplies and by manufacturers and dealers, in turn, their statements concerning the essential quality and economy of the goods they offer to consumers.

There are thus two general divisions in industrial advertising, the first to the manufacturer and the second to the consumer.

Buyers of Industrial Equipment

A careful survey of the industrial field has directly established that purchases of industrial equipment and materials depend primarily upon decisions of the operating staffs, the heads of which are responsible for the efficiency of production. This group of practical men includes superintendents, engineers, chemists, designers and foremen all of whom are alert for progress. These experts gain knowledge of outside advancement in the practice of their specialties chiefly through the industrial press and secondarily by catalogs, bulletins and other privately published trade literature. The relative effectiveness of industrial press advertising and private trade literature as a source of information is more than 2 to 1 in favor of the press as indicated by personal preferences expressed in a recent canvass of general industry.

The Industrial Press

The chief function of the industrial press is disseminating regularly and impartially the news of industrial progress and standard practice exemplified in both text and advertising. This is admitted by industrial executives in all lines as a valuable service in the interest of manufacturing and trade progress, and of the ultimate consumer.

The Operating Staff Purchases

Superintendents and works managers are the leading factors in buying mechanical equipment and crude rubber, followed by managers, chief engineers and engineering departments, while chemists dictate the purchases of compounding ingredients. These men of the operating staff can be more effectively interested in machinery, equipment, and supplies through the industrial press than by any other means. Following their interest comes the purchasing contact closing the sale by the manufacturers' salesmen, aided by private data, specifications, etc.

The India Rubber World Leads

The India Rubber World has long occupied a leading place in the esteem of the entire industry which makes it the particularly effective medium for advertising announcements to every branch of the industry in whatever part of the world it may be located. It is confidently asserted that nowhere else can be found a more effective medium for specific advertisements to every rubber interest. This statement takes into account not only the needs of plantation interests and rubber manufacturers but those of rubber goods dealers who in the rubber trade, as in every other, constitute the connection between the producer and the consumer. The latter for his information concerning rubber and its products turns instinctively to the rubber trade press as a guide to the purchases of his rubber goods needs.

The India Rubber World, acknowledged the leading exponent of the world's rubber industry for 36 years, justly claims continued and increased advertising support by all who supply the industry with machinery, equipment, supplies of raw materials, fabrics, compounding ingredients, etc.

Manufacturers and dealers rubber goods advertising is appropriately placed in *The India Rubber World* where users of rubber goods consistently seek such information.

CARBON BLACK

GODFREY L. CABOT, Inc.

940 Old South Building
BOSTON, MASS.

AGENCIES IN
New York City Philadelphia
San Francisco Pittsburgh
St. Louis Cincinnati

611 Metropolitan Building
AKRON, OHIO

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